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A Case Study of an Actual Re-Cementing Problem Solved by Using the Baker Cement Retainer.

BAKER CEMENT RETAINER

CASE STUDY NO. 403

PROBLEM: *To Rectify Imperfect Cement Job (Channeling Suspected)*

METHOD: *Set Baker Cement Retainer Above Perforations and Apply Squeeze (A Cement Plug was Already in the Liner Below the Perforations)*

RESULT: *After Cleaning Out, Zone was Reperforated and CLEAN OIL Produced*

• DETAILS •

Field: Montebello, Calif

Depth of Well: 7680'

Depth Retainer Set: 7132'

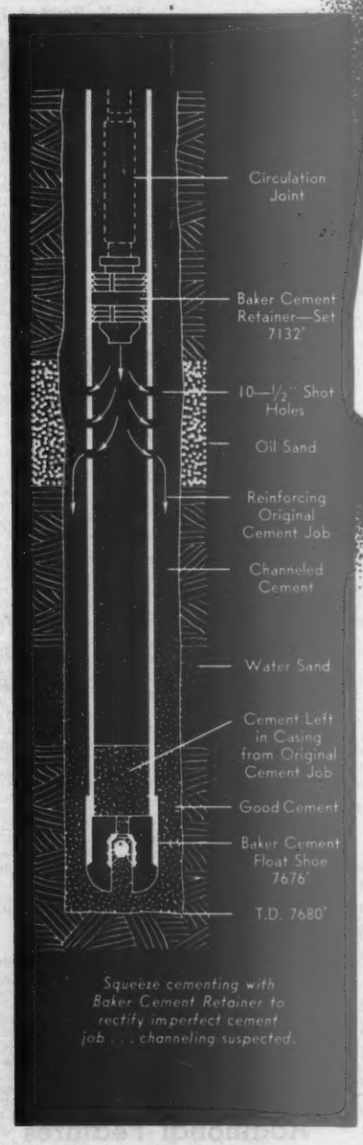
Breakdown Pressure: 1800 #

Final Pressure: 3000 #

Number of Sax Mixed: 50

Number of Sax Put Away: 50

How Cement Discharged: Through Ten, ½" Shot Holes



Squeeze cementing with Baker Cement Retainer to rectify imperfect cement job . . . channeling suspected.

BAKER SAVE A WELL CEMENT RETAINER

"For Friendly Service, and Dependable Products, Specify BAKER."

IF YOU ARE CONFRONTED with water problems . . . problems which may be solved through the use and proper placement of cement . . . it will pay you to investigate the Baker Cement Retainer. This device is daily solving many of the usual and unusual cementing, well repair, and well completion problems confronting the industry today and it may be the solution to your difficulties.

Complete information concerning the design, construction and operation of the Baker Cement Retainer and its many practical field applications will be found on pages 239-249 of the Baker Section of the Composite Catalog; also in Baker Broadcast No. 17-A, a comprehensive, 40-page treatise which will be sent to any oil man upon request.

BAKER OIL TOOLS, INC.

P. O. Box 127, Vernon Station, LOS ANGELES, CALIFORNIA

P. O. Box 3048, Houston, Texas • 19 Rector St., New York City

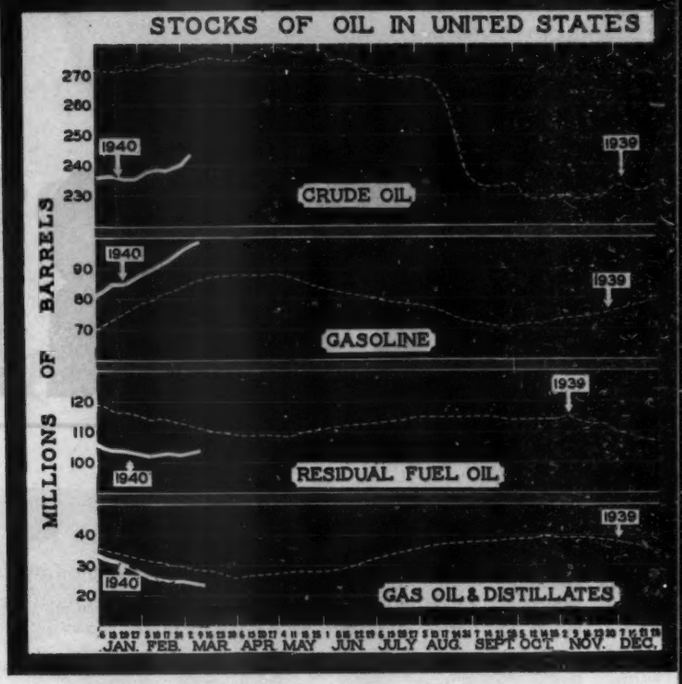
IMPORTANT BAKER CEMENT RETAINER APPLICATIONS INCLUDE:

Re-Cementing • Cementing Behind Sections of Pipe • Reducing Gas/Oil Ratios • Series Cementing Plugging off Bottom Fluids • Plugging Back to Upper Zones • Testing Upper Cased Formations Squeeze Jobs • As a Heaving Plug • As a Bridge Plug at any Place in Casing or Liner

BAKER CEMENT RETAINER

Trends

Illinois Crude Oil Production Likely To Hit Peak Soon



REPORTS from Illinois indicating that the industry would not be compelled to absorb further large increases in crude production in that area were an encouraging development of the past week. It has been assumed by many that the Illinois crude output would continue to climb until a production of at least 500,000 bbl. daily was reached. One investigation early this month reported that the 500,000-bbl. level would be attained early next month and would continue at that point for several months.

On a basis of developments of the past 2 weeks many now feel that this projection of the Sucker State's production was too high. It is pointed out that the initial production of the Devonian wells of the Salem field, which has been largely responsible for the gain in output over the past few weeks, has been decreasing steadily as new wells are completed.

In the older producing formations the production per well has declined to the point where the total output has leveled off despite the fact that many new completions are reported weekly. This turning point apparently has been reached in the Louden field and in the Salem field development, not including the Devonian wells. There are several new fields to consider, but their producing areas apparently are not large and they will not disturb a situation dominated at this time by the Salem and Louden production.

With this situation in mind, one important operator in Illinois predicts a peak of 450,000 bbl. daily in Illinois, with a decline to start later which will bring the production down to around 350,000 bbl. daily by the end of the year. This prediction of course is based on the assumption that no new major fields or sands will be found in the near future.

A leveling off in Illinois production at this time would be helpful to both crude-oil and refinery markets. Prices within the field have in fact stiffened within the past 10 days. If this price trend continues, it is certain to have favorable reactions in the Mid-Continent, which has experienced a steady restriction of its crude and refinery outlets due to the expansion in Illinois operations.

CRUDE PRODUCTION *3,826,363 bbl. daily average—up 21,398 bbl. One year ago 3,349,388 bbl.*

CRUDE STOCKS *244,126,000 bbl. as of March 2—up 3,290,000 bbl. One year ago 272,971,000 bbl.*

GASOLINE STOCKS *99,397,000 bbl. as of March 9—up 1,033,000 bbl. One year ago 85,912,000 bbl.*

RESIDUAL FUEL-OIL STOCKS *103,825,000 bbl. as of March 9—up 304,000. One year ago 111,681,000 bbl.*

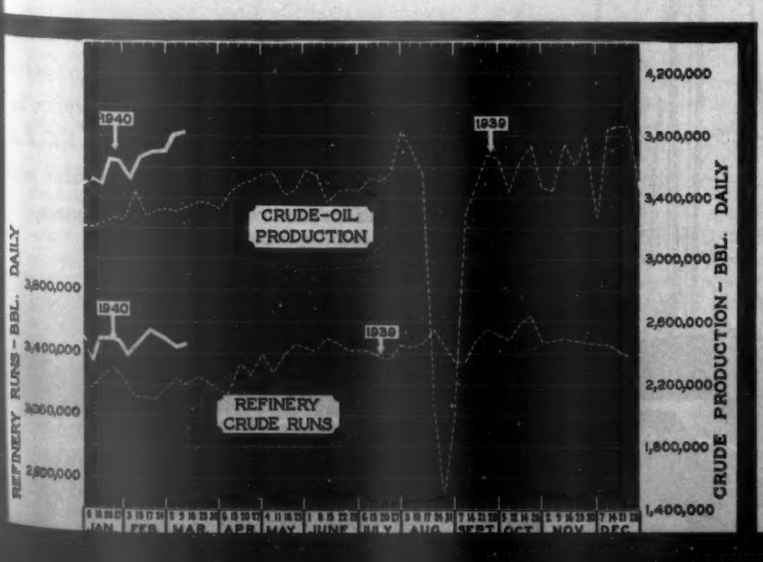
GAS OIL AND DISTILLATES *24,560,000 bbl. as of March 9—down 455,000. One year ago 27,997,000 bbl.*

REFINERY RUNS *3,450,000 bbl. daily week ended March 9—up 5,000 bbl. One year ago 3,205,000 bbl.*

DAILY AVERAGE PRODUCTION FOR WEEK

	Mar. 9, 1940	Bur. Mines Mar. est. of demand	Mar. state allowable	Mar. 2, 1940
Oklahoma City	103,250	.....	.....	92,000
Seminole field	39,900	.....	.....	39,675
Remainder of state	283,700	.....	.....	281,975
Total Oklahoma	426,850	420,300	420,300	413,650
East Texas	398,000	.....	.....	484,000
West Texas	271,286	.....	.....	251,583
North Central Texas	141,509	.....	.....	137,754
Texas Panhandle	78,992	.....	.....	78,392
East Central Texas	85,747	.....	.....	79,600
Gulf Coast Texas	388,107	.....	.....	363,364
Southwest Texas	108,894	.....	.....	102,246
Total Texas	1,472,535	1,330,600	1,526,589	1,496,939
North Louisiana	67,555	.....	.....	69,130
Gulf Coast Louisiana	215,000	.....	.....	211,897
Total Louisiana	282,555	253,200	277,412	281,027
California	615,100	587,100	592,000	585,250
Kansas	163,500	153,900	165,000	176,900
Arkansas	69,255	65,500	70,000	68,990
Mississippi	7,430	1,300	.....	6,815
Eastern fields	108,250	111,700	.....	105,000
Illinois	414,670	329,700	.....	404,477
Michigan	64,558	64,800	.....	63,877
New Mexico	114,070	103,200	114,000	114,100
Rocky Mountain area	87,590	79,300	.....	87,940
Total United States	3,826,363	3,500,600	.....	3,804,965

Outside the Middle West and Mid-Continent conditions are unsettled. Special importance attaches to legal developments in the application of Texas proration this week. In the Gulf Coast area refiners need spot and contract business in export markets, and crude-oil shipments are running under those of a year ago. The natural-gasoline market at the Gulf terminals is particularly critical. Further weakness developed during the week in eastern gasoline markets. The strongest products in the markets generally are kerosene and tractor fuels.


CRUDE-OIL PRODUCTION
REFINERY CRUDE RUNS
1940
1939
REFINERY RUNS - BBL. DAILY
CRUDE PRODUCTION - BBL. DAILY
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

SPARKS . . . FROM THE NEWS

REBUKE: It didn't even require a vote to silence radio propaganda which the Department of the Interior has been using in its efforts to stir up public sentiment in favor of the Cole bill. Congress said to pipe down. Mr. Cole supported the motion.

NIP AND TUCK: Observers at Washington believe chances are about 50-50 that Congress will adopt the Smith amendments to the National Labor Relations Act. However, even the proposed face lifting will not correct what many feel to be serious shortcomings of the act.

MOUTHFUL: The annual statement of a major oil company to be released this week will state "a more friendly governmental attitude equally considerate of investors, workers and the consuming public, would be of benefit to the oil business, as would relief from increasing taxes."

STILL THERE: Reports indicate the only gorge that hasn't broken and moved out is the gasoline gorge at the Gulf.

LEVELING OFF? Some now say that Illinois, barring additional new discoveries, will not reach the projected 500,000-bbl. daily. They predict a leveling off in the near future.

PACESETTER: Aviation, compared with the automotive industry, is not a large consumer of motor fuels and lubricants, but it is a pacesetter in regard to quality of petroleum products.

●

Hailed by some oil men as the "most important Oklahoma discovery since Fitts," Pure Oil Co.'s No. 1 Quinton Little A, wildcat in Marshall County, appears to be a big producer in the Tulip Creek sand. Located near the Washita River, it is in an area that will be inundated unless Governor Phillips succeeds in his efforts to block construction of the proposed Denison dam on the Red River. Butane gas is being used for fuel. See description on Page 76

ADVANCE: Still in its infancy, 1940 has given the oil industry two significant exploratory developments. These are the introduction of the mass spectrograph to prospecting, and the application of radioactivity to the correlation of geological formations.

FESTIVAL: With real Hollywooden ballyhoo, Magnolia, Ark., celebrated the second anniversary of its namesake oil field. All the fixin's of a genuine festival were on hand, including the coronation of the ubiquitous queen. Political and petroleum bigwigs lent their presence.

FAVORABLE: Preliminary estimates indicate that first-quarter earnings of most oil companies will be greater than in the same period last year.

SPREADING OUT: It is beginning to look like old times in the Kansas field, with wildcatters getting away from the proven areas and exploring for oil in counties yet barren of production.

UNDISMAYED: Failure of the second well drilled in the Falls City, Neb., area hasn't discouraged exploration, several additional tests being ready to start as soon as muddy roads permit necessary transportation.

OIL AND CRACKERS: Georgia, largest of the states east of the Mississippi, is being geologized with the hope that it will be the next oil area. Exploration work is under way in the Cracker State at several points.

KINKS: Field and plant men of the natural-gasoline industry will again be given an opportunity to display their talents for uncovering improved operating methods when the N.G.A.A. meets in Tulsa in May. There's a sizable wad of folding money to be awarded as prizes.

WELL OF THE WEEK . . .

Aviation Gasoline Assuming Increasing Importance

By H. STANLEY NORMAN

NEW YORK, Mar. 11.—While it is difficult to arouse much enthusiasm over a channel of motor-fuel consumption which accounts for a little less than a half of 1 per cent of total domestic demand, the spectacular growth of aviation warrants frequent examination by petroleum refiners. The premium prices accruing to refiners for aviation gasoline and the fact that motor-fuel consumption has a little more than doubled since 1932 combine to forecast even greater things in the future.

It is doubtful that in the next decade any nation, either major and minor, will be without an adequate air force. Particularly does the appreciation of aircraft as an instrument of defense and warfare apply to the United States which is rapidly bringing its fleet of planes to the numerical parity with large European and near eastern countries. Government aviation-gasoline consumption in 1939 is conservatively estimated at 48,000,000 gal., an increase of 7 per cent over the previous year. However, the real impact of expanded aeronautical activity within the United States armed forces will not be felt until the current year is ended and probably will overlap into 1941. The present program calls for purchase of 12,000 military aircraft, and pilots must be trained as rapidly as practical to man the expanded equipment.

Exports Equal Domestic Consumption

Statistics on the exportation of aviation gasoline are just now becoming available, but it is of interest to refiners to note that shipments to foreign ports are approximately equal to domestic consumption. This conclusion is based on Bureau of Mines reports for November and December, 1939. During November and December, the only 2 months so far in which the bureau has segregated aviation gasoline into a separate classification, exports totaled 646,000 bbl. and domestic demand was calculated at 703,000 bbl. Production of aviation motor fuel for the same 2 months was reported at 811,000 and 909,000 bbl., respectively, totaling 1,720,000 bbl., which is 371,000 bbl. greater than the combined exports and indicated domestic demand. At the end of 1939, United States refiners had aviation-gasoline stocks on hand totaling 2,771,000 bbl., which is not much more than minimum working stocks in view of the relationship to demand.

No doubt exists that United States refiners are thoroughly equipped to meet any increase in demand for aviation gasoline. The fact is that, generally speaking, United States refiners are overequipped to meet the current demand for aviation gasoline. However, the premium motor fuel is going into blends for automotive requirements to meet the demand for improved quality in that field. Under the circumstances, only an emergency could influence the operation of available facilities to the exclusive manufacture of aviation motor fuel.

Giant skyliner coming in for a landing at New York after a 14-hour plus flight from Los Angeles

In a recent private survey, it is estimated that facilities are now in operation capable of producing 270,000,000 gal. of 100-octane gasoline and that plants under construction will raise this capacity to about 335,000,000 gal. by the end of 1940. In a balanced refinery operation, however, a majority of the 100-octane motor fuel goes into preparation of inferior products to meet competitive quality in the automotive field and to bring other quality stocks up to the 95 and 97-octane requirements of commercial aviation.

Air Carriers Decline in 10 Years

Because of the ability of airplane design engineers and motor manufacturers to increase the per-unit load-carrying ability, there has been an overall decline in the number of scheduled air carriers over the past 10 years, but the use of multiple and more powerful engines has caused an uninterrupted increase in gasoline consumption since 1932 with the single exception of 1934. The 1934 decline in civil aviation-gasoline consumption, however, was more than offset by an increase in government requirements, permitting the total requirements to reflect an uninterrupted chain of stepups.

Consumption of lubricating oil in government-owned aircraft has increased apace with motor fuel, according to statistics obtained from the Civil Aeronautics Authority, but in civil operation there have been relatively minor changes in the actual consumption for the past 8 years. Government aircrafts are estimated to have consumed 1,500,000 gal. of motor oil in 1939, compared to 455,763 gal. in 1932. During the same period, government planes increased their consumption of gasoline from 20,077,884 gal. in 1932 to an estimated total of 48,000,000 gal. in 1939. Therefore, it is seen that the government used 1 gal. of motor oil to each 44 gal. of gasoline in 1929, whereas, the ratio was 1 to 35 in 1938, the last year for which official statistics are reasonably complete.

The improvement of motor oil and the lubricating systems of engines is further displayed in the ratio of consumption by civil aircraft. For example, private and commercial aircraft consumed 1 gal. of lubricating oil to each 30 gal. of gasoline in 1932 but in 1938 the ratio had dropped to 1 to 49.

The decline in the number of scheduled air carriers in service has been general during the past 10 years, dropping from a peak of 600 units in 1930 to 345 as the low mark in 1938. Although the gain of nine planes from the low of 1938 to the middle of last year may be the forerunner of another upswing, the preceding decline was symbolic of the conversion from single and bimotored ships to the luxury airliners of today some of which carry as many as four 1,250-hp.

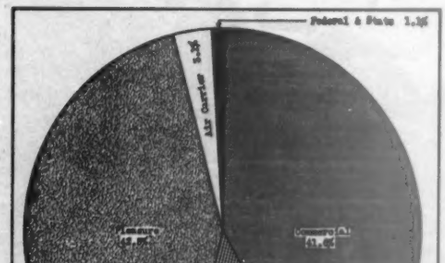
motors. There are numerous twin-motored ships in service today and they will remain popular, but they generate a total of 2,500 hp. now, whereas, 10 years ago the maximum would have been not more than 1,500 hp.

The number of private airplanes in operation during the past decade reached a low of 7,752 in 1934. Since that time there has been a steady increase in the number of units in service to an actual total of 10,718 in 1938 and an estimated total of 10,920 at the end of 1939. The renewed interest in private-plane operation is the result of a multitude of developments, not the least of which is availability of emergency and regular landing fields equipped with facilities for refueling.

In addition to its contribution of super fuels for the modern 1,250 and 1,500-hp. aviation engines, the petroleum industry has participated in the progress of private and commercial flying by rendering refueling service at whatever points it is needed.

La Guardia Field

Probably one of the greatest recent advancements in aviation was the completion of La Guardia field at North Beach, Queensboro, New York, a 20 or 30-minute trip by a variety of transportation mediums from the heart of the city.



Pie chart of certificated aircraft classified as to types of operation. Commercial includes instructional, aerial advertising, crop dusting, charter, competitive, exhibition, photography, mapping, surveying, sightseeing and airport flying

Not the least of the appointments at La Guardia field is the elaborate refueling system installed for land planes, amphibians and the trans-Atlantic liners which operate on regular schedules direct to Europe during the summer months and via

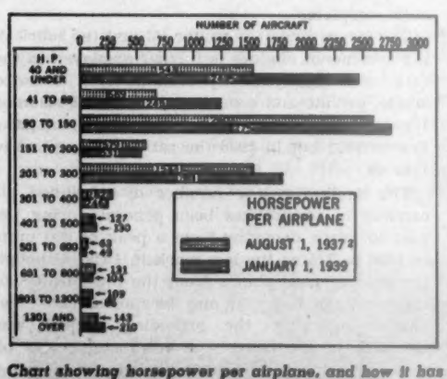


Chart showing horsepower per airplane, and how it has increased. Figures from Civil Aeronautics Authority

GASOLINE AND OIL CONSUMED BY GOVERNMENT AND CIVIL AIRCRAFT, BY YEARS

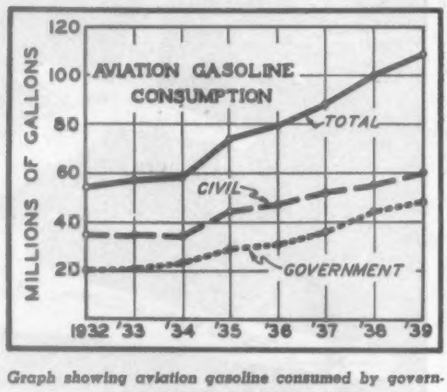
(In gallons)

Year	Gasoline			Oil	
	Government	Civil	Total	Government	Civil
1932	20,077,884	33,980,547	54,058,431	455,763	1,113,165
1933	21,835,526	35,187,900	57,023,426	706,367	1,293,092
1934	23,647,113	34,767,143	58,414,256	970,547	1,197,741
1935	*29,319,412	44,364,868	73,684,280	*1,073,030	1,214,185
1936	†31,758,397	47,508,565	79,266,962	†1,011,363	1,188,165
1937	†36,209,123	52,142,624	88,251,747	†1,120,140	1,155,421
1938	†44,937,128	55,511,245	100,448,373	†1,273,656	1,117,745
1939 (estimated)	48,000,000	60,225,000	108,225,000	1,500,000	1,300,000

*Includes estimates for one government department. †Includes estimates for one government bureau.

Bermuda during the winter. Plans are far advanced for addition of another trans-Atlantic service within the next few months.

At the present time La Guardia field has 71 regularly scheduled incoming and the same num-



Graph showing aviation gasoline consumed by government and civil aircraft since 1932

ber outgoing flights each week day. On Saturdays, Sundays, and holidays there are a few less, but the monthly average is approximately 4,200 take-offs and landings. An average of 10 planes daily of other than scheduled airline operations use La Guardia field, but this is because of the discouraging high fees ranging from $5 to $50 for private craft, depending on weight.

The consumer tank-wagon price of aviation gasoline (87 octane) ranges from 15 to 20 cents per gallon, but 100-octane motor fuel currently brings about 16-17 cents per gallon on the cargo and tank-car markets of the Gulf and East coasts.

CIVIL AIRPLANES OF THE UNITED STATES

Year	Scheduled air carriers	Private airplanes
1929	525	9,315
1930	600	9,218
1931	590	10,090
1932	564	9,760
1933	604	8,780
1934	518	7,752
1935	459	8,613
1936	380	8,849
1937	386	10,446
1938	345	10,718
*1939	354	†10,920

*As of June 1939. †Estimated as of June 1939.

Congress Cracks Down on Radio Propaganda for Cole Bill

A SLAP at the Department of the Interior for its radio broadcasts attempting to drum up popular support for the Cole bill was given by the House of Representatives last week in passing the department's annual appropriation bill. Without even a vote the House adopted an amendment offered by Rep. Ed Gossett of Texas providing that no part of the appropriation "shall be used for the broadcast of radio programs designed for or calculated to influence the passage or defeat of any legislation pending before the Congress."

During debate Representative Gossett referred to some of the oil-conservation broadcasts which were introduced into the record at the Cole committee hearings, and read parts of them to the House, declaring that regardless of the merits of the Cole bill, "to present by radio at government expense an argument in behalf of pending legislation is bad; to use misinformation in such an argument and for such a purpose is intolerable."

He pointed out that the Cole bill would provide for the absolute federal control of the oil business of this country, such control to be in the Department of the Interior.

"In an obvious effort to build up sentiment for this bill, the Department of the Interior, through its radio section, staged several broadcasts that would rival Orson Welles' melodrama on the men from Mars."

He quoted from the broadcast which vividly portrayed the country without oil, with all planes, cars, trucks, trains and other modern necessities stalled for lack of petroleum.

In another broadcast, Mr. Gossett said, a narrator representing the department broadcast that all known United States oil reserves will last only 13 years and certainly not longer than 17 years. "He then appeals to an imaginary Mrs. Murphy to see her congressman."

The amendment was supported by Representative Cole, who declared that, after disclosure of these broadcasts before his committee, a representative of the Interior Department explained to him the general scope and nature of the department's broadcasts. Mr. Cole declared that in general the broadcasts are interesting and educational and not subject to criticism, but that his subcommittee condemned the broadcasts said to specifically refer to legislation before it and does so now. "The broadcast referred to," Mr. Cole told the House, "has no influence upon the committee dealing with this problem whatsoever. We have about concluded the general survey of this matter and our report will be made within the time required for it. The law already covers this situation, but nevertheless this amendment might seem to curtail in the future overstepping the bounds and privileges extended this department. I do not think it is necessary, but it might do good as a reminder."

The Budget Bureau approved an estimate of $21,660 for the department's radio section, the first time there has been a specific item for radio in the department's annual bill. The House appropriations committee reduced this by $6,640, but added a new item of $3,000 to permit the department to make records of broadcasts for distribution to small radio stations.

Many Sciences Called Into Use in Oil Exploration

By W. V. HOWARD

This is the first of a series of articles dealing with petroleum exploration and development. In discussing the different phases, an attempt will be made to show the nature of the scientific principles on which they are based

THE year 1940 has witnessed two highly interesting developments in the oil industry, the introduction of the mass spectrograph to prospecting and the application of radioactivity to the correlation of geological formations. Whether or not the particular developments prove of great economic value, they indicate a trend which means many millions of dollars to the oil industry. They are particularly important in that they demonstrate an increasing tendency to cooperative research and the application of known scientific principles to our economic and industrial development. They indicate a further breaking down of artificial barriers which have been erected between the different sciences by industry and by our educational institutions.

It is less than a century since scientists began to specialize in very limited fields. In the middle of the nineteenth century, our sciences were still so broad that individuals could cover many major sciences. Gradually, the body of knowledge became so great that men were unable to be expert in even a single science. Geologists almost ceased to exist and their places were taken by petrographers, paleontologists, structural geologists, stratigraphers, and so forth. Even these fields became more restricted and we no longer find paleontologists, but specialists in foraminifera or molluscoidea, while stratigraphers narrow the range of their research to one or two geological systems.

Four Types of Science

Even the whole field of science has undergone considerable change and we find it divided into four types of science, which may be styled pure science, applied science, pseudoscience and superscience.

These four types of science may be illustrated with reference to radioactivity. Certain elements belonging to the uranium, thorium and actinium series undergo a spontaneous transformation into other elements through the emission of α, β, and γ-rays. α-Rays are helium atoms, β-rays are electrons, and γ-rays are analogous to X-rays. The end product of these reactions are three forms of the element, lead. Other elements such as potassium are also radioactive, but the nature of this radioactivity is not yet understood.

We apply this science in many ways. For example, we treat cancer with radium which shoots off α-rays at enormous speeds. We do not know what cancer is, exactly, nor do we know the exact way in which the radium emanations work, but we do not have to wait until we find out all of the facts before we use the material. We do not know exactly what electricity is, but we make it work for us, nevertheless.

We know that rocks contain radioactive materials in varying quantities. We also know that many characteristics of rocks are uniform over long distances and that often these characteristics differ in different formations so that we can distinguish one formation from another, even though we do not actually see samples of the rock. If the radioactivity of rocks is one of these characteristics, we can use it in correlating formations in wells, even though we have never analyzed the rocks to find out what particular elements cause that particular manifestation of radioactivity. We have applied a science concerning which we know relatively little. Learning more about it may or may not increase our uses of it.

In applying a science, whether we know it or not, we simply try to see if it works. If it does, we use it; if not, we try something else.

Pseudoscience consists mainly of assumptions regarding facts that we do not know. Obviously, we must have a great deal of pseudoscience. We cannot sit back and wait until the professors have found out everything about a subject until we begin to use it. We can only distinguish facts from half facts and superstitions. We might exemplify a pseudoscientific development of the theory of radioactivity as follows: Oil dampens radioactivity. Therefore, if we walk around on the surface of the earth with a suitable instrument, we can determine the presence of oil by noting where radioactivity has been dampened. If we actually do this, it may work but the theory behind it may be entirely wrong.

Super- and Pseudoscience

The difference between superscience and pseudoscience is somewhat shadowy. Superscience is admittedly a great theory which is built on the basis of a few facts and many assumptions. If radioactive substances emit hydrogen and helium, it is possible that they are built up entirely of hydrogen and helium. If so, then all other elements may be built up of the same substances. If we assume this to be true, then atomic weights must be slightly greater than whole numbers as the atomic weights of helium and hydrogen are 4 and 1.008, respectively. Actually, atomic weights are slightly less than whole numbers so that either the theory is wrong or else there are other factors that must be considered. This other factor is a packing factor, and, since there is a change in mass, the theory of conservation of mass is incorrect. However, energy is given off when radium breaks down so we can modify our theories of conservation of mass and of energy into a larger generalization, and so on.

Every advance in pure science causes a general checkup of superscientific theories which usually present more problems to be solved.

From the standpoint of exploration for oil and development of oil fields, the methods and implements of superscience are often very valuable,

(Continued on Page 98)

SOMETHING NEW IN GOLF-COURSE HAZARDS . . .

The Manziel No. 1 City of Shreveport, completed last week, stands in the rough off No. 1 fairway of the city's municipal golf course. Although a section of the course has been proven for production for several months, this is the first drilling operation on the property. A modest income to the city is expected from the average producer, adding another hazard to golfers

Oil Search in Georgia Covers Wide Front

By ARTHUR C. MUNYAN

Geologist, Georgia Division of Mines, Mining and Geology

This article on the geology of Georgia also describes the exploratory campaign under way, which seeks to determine the state's petroleum potentialities

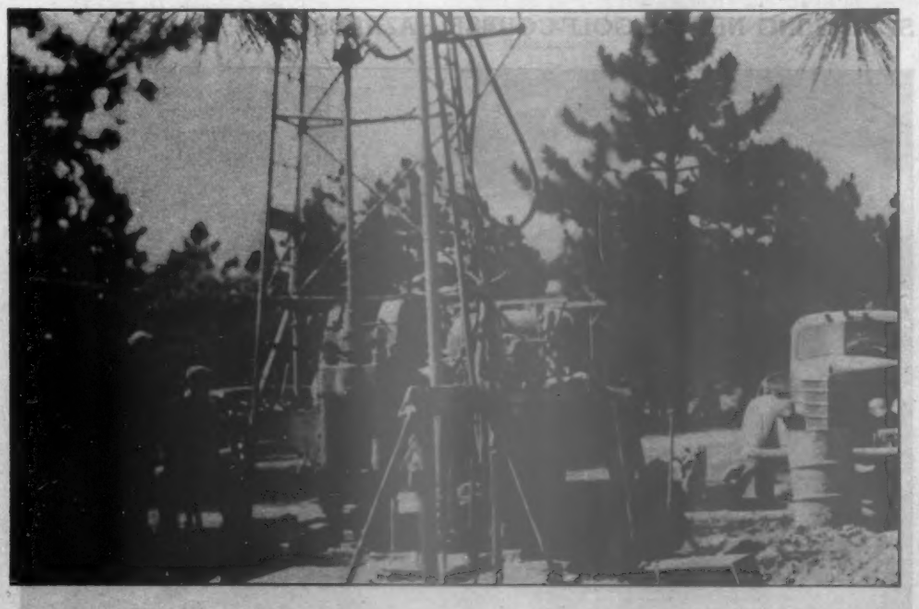
GEORGIA[1] is the largest state east of the Mississippi River and ranks twentieth in size with those states that are west of the Mississippi. Its area, 59,265 sq. miles, is only 7,159 sq. miles less than all of the New England states combined. Like most of the Atlantic-slope states, its topography is quite varied, which, in turn, is principally due to the wide diversity of geological formations ranging between the hard, crystalline rocks of the pre-Cambrian to the soft, unconsolidated deposits of the Recent.

South of an irregular line (see map) from Columbus, Ga., on the west, through Macon, to Augusta on the east, lies the Coastal Plain which occupies 60 per cent of the total area of the state. North of the same line, known as the Fall line, occurs the Crystalline area which accounts for about 35 per cent of the state's area. The third major division is located in the northwestern corner of Georgia. It is spoken of as the Paleozoic section, and contains about 5 per cent of the total area of Georgia.

Crystalline Area

The Crystalline area contains the representatives of two major physiographic provinces: the Piedmont and the Appalachian mountains. The former is characterized by a gently southward-sloping, rolling upland plain sparsely dotted by monadnocks, while the latter is recognized by its rugged mountainous appearance. Both provinces, however, are underlain by similar rock types such as granites, gneisses, schists, and many other varieties of igneous and metamorphic rocks. In these formations any vestiges of the former existence of life preserved as fossils, which could be used for correlative purposes, naturally are extremely rare, if not entirely nonexistent. Consequently, exact-age determinations are virtually impossible for the various formations in the Crystalline area, and they are generally classified as pre-Cambrian, although younger rocks such as granites and metamorphics as well undoubtedly exist in the area.

On the other hand, this problem need not worry the prospector for oil and gas, since it would be impossible for petroleum and its allied substances to exist in the rocks of the Crystalline area. In past years several test wells were drilled in the Crystallines in search of petroleum, but all were, of course, unsuccessful.[2]



Right: Pan American-Adams McCaskill's No. 1 well, Landlot 329, Pierce County, drilled in 1938. Depth 4,375 ft. Below: Rotary machinery and floor of rig at Uvalda on Meadows' No. 2 well

Paleozoic Area

The Paleozoic area, occupying the northwestern corner of Georgia, as stated, is also divided into two major physiographic provinces: the Valley and Ridge section, and the Cumberland Plateau section. The Valley and Ridge section is peculiarly characterized by long, high, narrow ridges which alternate with and parallel broad flat valleys, all of which trend more or less northeast-southwest. The rocks of this section are all Paleozoic sediments, and therefore are considerably younger than those of the Crystalline area. The valley and ridge topography has resulted from a series of parallel folds and thrust faults, the thrusting coming from the southeast. This is known because the intensity of folding is greatest immediately adjacent to the crystalline rocks on the southeast and least to the northwest. Erosion, subsequent to the folding, has concentrated on the weakened rocks of the anticlines, causing them to become valleys; while the synclines, in which the rocks were compacted and strengthened by the orogenic movements, have resisted erosion and now form the high ridges. As a result, there seems to occur a paradox in which the anticlines, or upwarps, now are at a lower topographic level than the synclines, or downwarps. It is believed that the intensity of folding in the entire Valley and Ridge section in general, has been too great to have permitted the retention of any preexistent liquid petroleum.

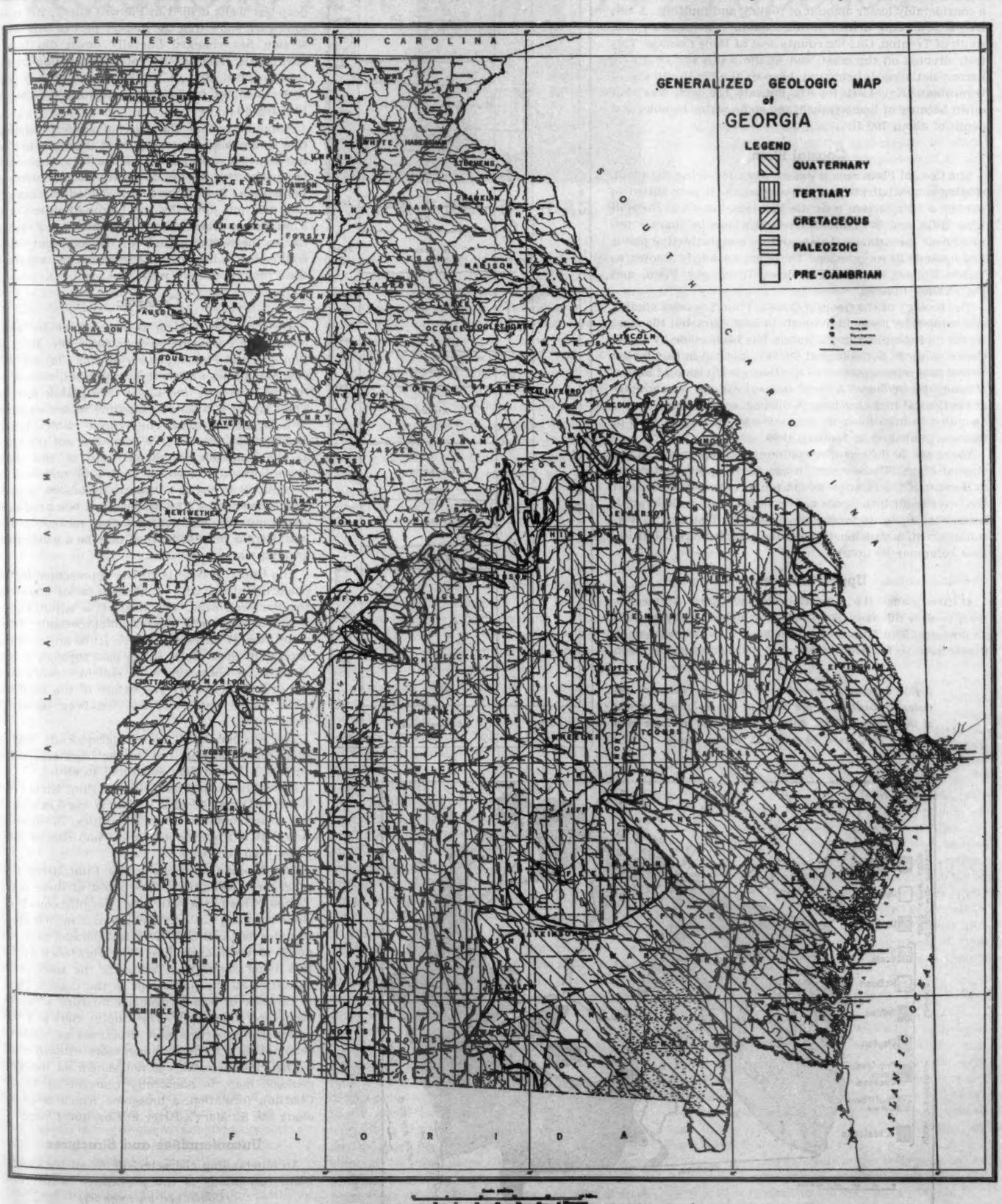
It is further believed that the magnitude of the orogenic movements would have created sufficiently high temperatures to have altered any petroleum to asphalt. There is a possibility, however, that accumulations of gas may be discovered in localities where specific conditions have prevented its escape.

The Cumberland Plateau section is characterized by high, broad, flat-topped mountains in which the rocks are but gently folded. In Georgia, Lookout Mountain and Sand Mountain are representative portions of this dissected plateau.

The sandstone, limestones, and shales which

form the plateau, are part of the Mississippian and Pennsylvanian systems; no Permian deposits are known in Georgia. Several coal seams occur in the basal Pennsylvanian (Pottsville) sandstone in this section.

Fossils, on the whole, are abundant throughout the Paleozoic area, and it can be concluded, therefore, that the ancient seas were teeming with plant and animal life. The presence of coal beds substantiates the fact that the land, also, possessed a heavy cover of plant life, at least during Carboniferous time. An organic source for petroleum, then, appears not to have been lacking in this area. But even supposing that an excess of organic matter is a prerequisite to the formation of petroleum, many other factors must be taken into consideration before gaining a commercial accumulation. First, there is the question of structure. This seems to be fairly simple because of the prevalence of many anticlines and synclines in the region. However, upon closer examination, many of the anticlines are found to be so greatly faulted and broken by joint systems that, as a suitable trap for oil, they must be discarded at



once. Next, attempts to secure closure on structure are quite difficult because of the fact that most of the anticlines have a decided pitch (a component of dip in the direction of strike). Third, the intensity of folding, and its accompanying heat and pressure, eliminates a large portion of the area to the east and southeast—the Valley and Ridge section.

The only part remaining, then, for consideration seems to be the Cumberland Plateau section in which there has been a considerably lesser amount of folding and faulting. A test well is now being drilled in this section. It is located 1 mile south of Trenton, Ga., the county seat of Dade County. This test, situated on the crest, and at the south end of a long narrow anticline, is being put down by the Ky-Mo Oil Co., of Owensboro, Ky. Last reports indicate the well was shut down because of bad weather, and some water trouble, at a depth of about 700 ft.

Coastal Plain

The Coastal Plain area is essentially a low-lying flat plain, sloping somewhat unevenly to the south. It is modified in part by a hilly section near the Fall line, known as the Fall Line Hills, and is characterized elsewhere by marine terraces near the Atlantic Ocean, and several distinctive plains and uplands in its interior. These are variously known as Tifton Upland, Louisville Plateau, Dougherty Plain, and Fort Valley Plateau.[3]

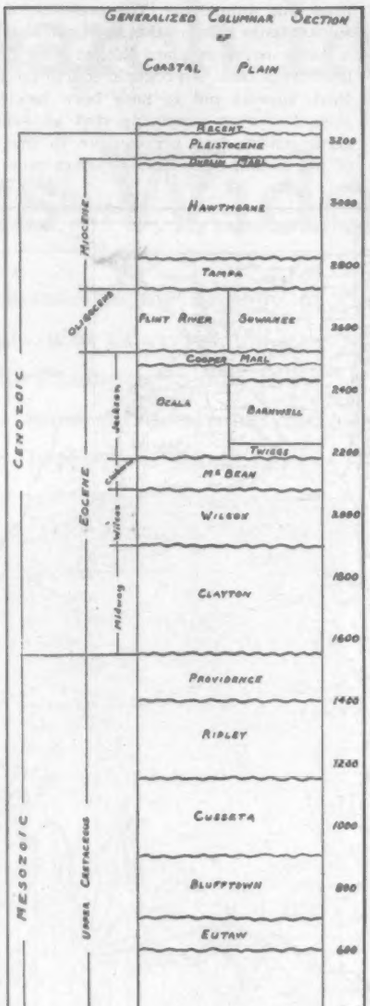
The geology of the Georgia Coastal Plain has been studied and mapped by many individuals in past years, but the most recent and complete investigation has been made by C. W. Cooke[4] of the U. S. Geological Survey, assisted in part by the writer as a representative of the Georgia Division of Mines, Mining, and Geology. A short summary of the stratigraphy of the Coastal Plain has been published, and the work is now compiled in map form in the new state geological map of Georgia published in January 1940.

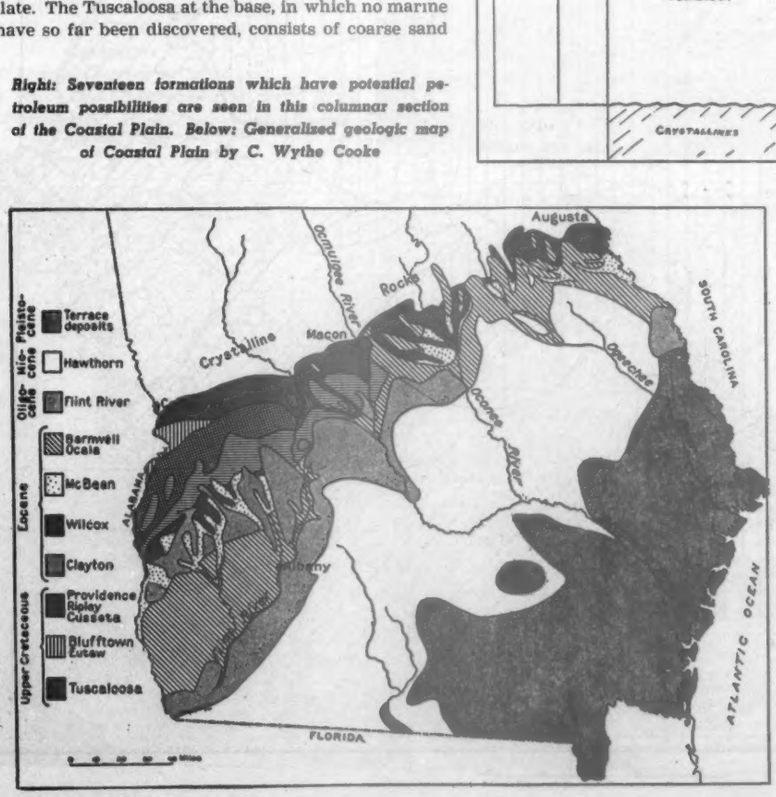
There are 26 different formations now recognized in the Coastal Plain. These range in age from Upper Cretaceous to Recent. If the Pleistocene marine terrace formations and the two Recent formations are excluded from consideration because of their thinness and superficial features, 17 formations remain which have potential petroleum possibilities. (See columnar section.)

Upper Cretaceous

At first glance the formations of the Upper Cretaceous seem to offer the most likely beds in which oil and gas could accumulate. The Tuscaloosa at the base, in which no marine fossils have so far been discovered, consists of coarse sand and kaolin on its outcrop. The Eutaw, just above, is a coarse marine sand. Next comes the Bluffstown marl, which, in turn, is overlain by the Cusseta sand. The Ripley, a dark-gray glauconitic sand, lies above the Cusseta, and is in turn overlain by the Providence sand. The major portion of the Upper Cretaceous, therefore, as seen in the outcrop areas, consists of sand. However, the deep-test wells drilled in Pierce County, 200 miles southeast, show that the greater part of this sandy section has changed laterally down dip into a dark shale. The absence of deep drilling in the southwestern part of the state precludes a positive statement concerning a change in facies in that region.

Notwithstanding the lack of critical information in the southwestern part of the state, but, on the contrary, because of such a lack, the writer feels that the region is worthy of intensive investigation. The deepest well drilled in that section was put down by the Layne-Atlantic Co. as a municipal water supply for the city of Meigs, Ga., in the northern part of Thomas County. This well ended in the lower Eocene, and did not reach the Cretaceous. (See well log.)





Right: Seventeen formations which have potential petroleum possibilities are seen in this columnar section of the Coastal Plain. Below: Generalized geologic map of Coastal Plain by C. Wythe Cooke

Cenozoic

The Cenozoic system is represented by members of the Paleocene, Eocene, Oligocene, Miocene, Pliocene, and Pleistocene series. The Clayton, Wilcox, and McBean formations represent, respectively, the Paleocene and Lower and Middle Eocene. The Clayton is a sandy limestone which weathers to a bright red sand. The Wilcox (which is correlated with the Texas Wilcox and not the same as the Paleozoic Oklahoma sand of this same name) has not been divided into members in Georgia, as it has in Alabama. It consists of limestones and shales. The McBean is a brick-red sand on its outcrop, and contains near its base a thin fossiliferous marl bed which may be a good stratigraphic marker.

The Upper Eocene is chiefly represented by the Ocala limestone, with an inshore facies known as the Barnwell sand. The Ocala is a white, highly fossiliferous limestone containing, usually, large quantities of artesian water. It is an excellent marker in those wells which pass through it, but, in most instances the wells end in it since they are drilled for water. The extent of the Barnwell sand, under cover, has not yet been definitely determined.

The Cooper marl is stratigraphically higher than the Ocala but has so far been recognized only in a few widely separated localities.

Above the Cooper marl lies the Flint River limestone of Oligocene age. It, too, is very extensive, and also contains large quantities of artesian water. It is a somewhat darker and flintier limestone than the Ocala.

The Miocene, next above the Flint River, contains three formations. The oldest of these is the Tampa, which is a soft, sandy, argillaceous limestone cropping out only along a narrow belt about 20 miles east of Flint River and parallel to it just north of the Florida line. The Hawthorn formation lying above the Tampa is the most widespread of all the formations in the Coastal Plain. It consists of a heterogenous mixture of sands, clays, and limestones. The Duplin marl is a thin unimportant horizon now preserved as erosional remnants of a formerly much more extensive bed.

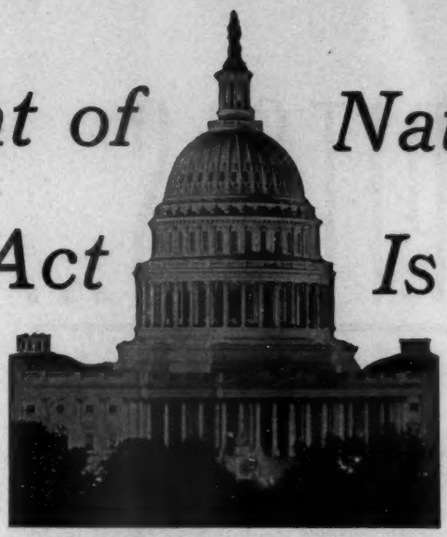
The Pliocene, which is not shown on the state geologic map, is doubtfully represented by the Charlton formation, a limestone which crops out along the St. Mary's River in Charlton County.

Unconformities and Structures

An outstanding characteristic of all the Coastal Plain formations is the prevalence of overlaps.

(Continued on Page 99)

Amendment of National Labor Relations Act Is Proposed



By HENRY D. RALPH

WASHINGTON, Mar. 11.—Amendment of the National Labor Relations Act will be a subject of controversy in Congress during the remainder of the session and probably will be an issue in the coming presidential election since at present the chances are about even that Congress will adopt the amendments proposed last week by the special House committee investigating the Wagner Act and the activities of the National Labor Relations Board.

The score of more or less technical amendments to the language of the act deal almost entirely with procedural matters and do not disturb the fundamental purposes of the law nor correct what many of its critics consider its major deficiencies; but already friends of the act charge that the amendments would emasculate it and undermine the rights of labor to organize and bargain collectively.

The amendments were drawn by Chairman Smith and the two Republican members of the investigating committee, but most of them were severely criticized in a minority report by the two New Deal members. They were drafted when the committee was only half way through its investigation and for this reason opponents are charging they are premature. They have been referred to the regular House labor committee which for more than a year has been considering other bills to amend the Wagner Act but has delayed action so long as to lead to the charge that it is stalling .

Chairman Mary Norton of the labor committee has already expressed opposition to the Smith amendments, indicating the administration will oppose them and that the labor committee itself may refuse to report them to the House or will delay action as long as possible. The attitude of organized labor has not yet crystalized, but observers look for opposition to a great many of the proposals.

There is no question but that a great many of the Smith amendments will have the general support of a very large percentage of the members of the House, perhaps a majority, but this does not insure early action. If the labor committee delays a report, the House can force the bill to the floor through a discharge petition, but this is a slow and cumbersome procedure and would probably take until around the first of May. Then the bill would go to the Senate where it would be referred to another hostile committee and where the chances are it would remain until the end of the session. Senate procedure is such that a few senators can delay or prevent action, and Congress will develop its usual adjournment fever by the end of May.

Supporters of the Smith amendments contend they would not in any way curb the right of labor to organize, bargain, or strike, but there seems to be some difference of opinion on this point as to certain of them. Certainly the amendments do not meet some of the fundamental criticisms of the Wagner Act such as charges that it is one-sided because it deals only with the rights of labor and the duties of employers and says nothing about the rights of employers and the duties of labor unions. Neither do they place any restrictions on methods used by unions in conducting bargaining activities, calling strikes, or fulfilling contracts. The Smith proposals are chiefly designed to correct criticisms of N.L.R.B. procedure, charges that board personnel and employes are biased against employers and against A. F. of L. unions and that the board acts as investigator, prosecutor, and judge at the same time. A large number of the proposals could be put into effect by the board itself without legislation if it were so inclined, and others may be accomplished through court decisions in a number of cases now pending.

Legislation of the type proposed probably could have been avoided had the administration put pressure on the N.L.R.B. to change its policies and rules of procedure, but this has not been done, with the result that legislation now will be considered an attack on the Wagner Act and on one of the chief New Deal policies.

THE first of the Smith amendments would abolish the present N.L.R.B. and create a new one by the same name, also with three members. The president could reappoint present members but they would have to be confirmed by the Senate. This is simply an indirect way of forcing the resignations of the present members.

Probably the most important amendments would divide the N.L.R.B. into two separate federal agencies. An administrator would be appointed by the president, subject to Senate confirmation, who would have no connection with the board and who would exercise all the administrative and prosecuting activities now conducted by the board. The board itself would act only in a judicial capacity, something like a grand jury. All complaints of unfair labor practices would be submitted to the administrator or his regional assistants, who would make investigations and issue complaints. These complaints would be filed with the board which would assign them for hearings before trial examiners as at present, but the board would have to give at least 15 days' notice of hearings. Cases would be prosecuted by the administrator, and there are restrictions placed on the board's power to issue subpenas and on its rules of evidence in order to correct allegations that trial examiners abuse their powers in order to favor unions bringing complaints.

Another very important amendment restricts the board's powers in representation cases where rival labor organizations are in dispute over claims of majority representation. In such cases the board would not have the power to determine bargaining units or to order employes to recognize one or the other rival union under such circumstances. In these cases the board could act only upon application by an employer or by a specified percentage of employes. There are also restrictions on the power of the board to specify the size of the appropriate bargaining unit, and, after the unit is determined, a secret ballot would be ordered to determine the majority union and this certification would be in effect for one year. Where there is a dispute as to the appropriate bargaining unit the employer would be permitted to refuse to bargain with either faction.

Freedom of speech of employers is guaranteed by an amendment to provide that the act is not to be interpreted as prohibiting expressions of opinion with respect to any matter which may be of interest to employes or to the general public, providing such expressions are not accompanied by acts or threats of discrimination, intimidation, or coercion.

Because of many criticisms that the board has acted on insufficient or improper evidence or has refused to permit the introduction of proper evidence, one amendment would require the board and its trial examiners to be bound as far as practicable by rules of civil procedure used in federal courts.

Also, the board would be instructed to base its findings of fact and its decisions on the preponderance of evidence, instead of, as at present, on any evidence in the case. On appeal of board orders, the courts could review findings of fact if it appeared that they were not supported by substantial evidence or were clearly erroneous.

THE amendments also would redefine collective bargaining to mean a willingness of employers to discuss complaints with representatives of employes but not necessarily to accept employe demands. The policy statement of the act is also reworded to delete the implied indictment that employers are responsible for labor disturbances. Another amendment would prohibit the board from acting on a complaint involving unfair labor practices occurring 6 months before the complaint was issued or from ordering back pay for a period of more than 6 months. There are also a number of other amendments of a more technical nature.

Chairman Smith insists the amendments will not interfere in the slightest with the rights of labor to collective bargaining and that they retain the policy that company-dominated unions will not be recognized. In spite of this assertion, and in spite of support which is expected to come from employer groups and conservatives generally, the Smith amendments are expected to meet strenuous opposition from New Dealers and for the most part from labor supporters, so that their passage at this session of Congress is highly problematical.

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ATTY. GEN. I. V. VAN WINKLE of Oregon told the Supreme Court that a land title "subject to perpetual attack by an administrative officer has no stability," in a petition asking the court to reconsider its refusal to review a Circuit Court decision awarding the federal Government title to land in the Elk Hills, Calif., oil field claimed by Standard Oil Co. of California.

The Oregon petition said it was interested in the litigation because it had received land from the federal Government to aid its school system.

STATE CAPITALS...

TEXAS

ANNOUNCEMENT OF THE SUPREME COURT on Monday that it would review Rowan & Nichols Oil Co.'s first attack on proration methods in the East Texas field was regarded by some observers as strengthening the Railroad Commission's position when the three-judge federal court convenes at Austin on March 14 to act on Humble Oil & Refining Co.'s suit and Rowan & Nichols second suit. The decision which the Supreme Court will review involves Rowan & Nichols' Todd-B lease, while the suit awaiting judgment at Austin pertains to the company's Todd-A lease. The commission appealed from the fifth district federal court last fall when it upheld the lower court's decision against the commission.

When the three-judge court reconvenes at Austin the Railroad Commission will seek to stay execution of the judgment granting Humble and Rowan & Nichols about 15,000 bbl. additional production daily in the East Texas field. The court orally ruled that such an injunction would be granted, after it had heard the suits on their merits in February, but it delayed making the final decision to give the commission adequate time to decide whether to appeal the suits or to write a new proration order for the East Texas field. Thus some observers feel that the commission is in a better position; that it can contend the injunctions should not be placed in effect until the Supreme Court acts on the first Rowan & Nichols suit.

DAILY ALLOWABLE PRODUCTION of Texas fields at the first of this week was over 1,526,000 bbl. daily as the Railroad Commission continued to grant increases to fields showing that a market demand existed for additional oil. Following the last statewide hearing, the commission set the daily allowable at 1,479,521 bbl., as compared with the Bureau of Mines' estimated-demand figure of 1,330,600 bbl. daily, but since then grants of higher quotas have raised the daily total until it is now about 195,000 bbl. above the bureau figure. While new wells completed since the first of March account for a small portion of the 47,000-bbl. difference between the present allowable and that set forth in the monthly order, bulk of the increase is due to grants of higher allowable. Southwest Texas has been the principal recipient of the allowable boosts, with the West Texas district next.

Increases announced on Saturday, all retroactive to March 1, were as follows: Turkey Creek, Nueces County, from 2,731 to 7,080 bbl.; Alice field, Jim Wells County, from 1,819 to 3,638; Ben Bolt, Jim Wells County, 1,217 to 2,434; Tom Graham, Jim Wells County, 1,277 to 2,554; Minnie Bock, Nueces County, from 932 to 1,680; La Rosa field of Refugio County, from 3,674 to 5,180; Segno of Polk County, from 2,018 to 2,880; and Jordan field of Crane and Ector counties, from 2,764 to 4,146 bbl. Other major increases granted included: East White Point of San Patricio County, from 8,319 to 11,600 bbl.; Plymouth, San Patricio County, from 8,584 to 12,522; Foster field of Ector County, from 10,427 to 11,427; and Walnut Bend of Cooke County, from 1,330 to 2,660 bbl.

ALARM AT THE HIGH RATE at which Texas oil fields were producing was expressed by Commissioner Jerry Sadler, who has dissented to the practice of granting higher field allowables after the monthly order was issued but who, nevertheless, has signed many of the orders.

Commissioner Thompson disagreed with Commissioner Sadler on the matter of allowable production. In answer to Mr. Sadler's allegation that Texas was producing too much oil, Mr. Thompson said on Monday that crude-oil stocks had been too low and "an increase of another 15,000,000 bbl. over the nation would do no harm."

"There might be some cause for alarm," he stated, "if we were at the end of the big gasoline-consumption period, but that period is ahead."

ONLY A FEW HEARINGS on allowable increases are scheduled for the immediate future, and the amounts of additional oil involved are relatively small. Thus, unless the commission receives a deluge of requests for higher allowables within the next few days, any increase in the total daily allowable over the remainder of the month will probably be due mostly to new-well completions. The state-wide oil-proration hearing has been set for March 20, and at that time requests for higher allowables in some fields will probably be heard. These, however, if granted would affect only the April allowable.

CALIFORNIA

SUPERIOR JUDGE EMMET WILSON of Los Angeles has ordered a further reduction in gas production of the Montebello field effective March 20 at which time the allowable production will be reduced from 100,000,000 cu. ft. per day to 80,000,000 cu. ft.

KANSAS

A GROUP OF PROPERTY and royalty owners in the Hugoton gas field in southwestern Kansas plan to challenge in Stevens County District Court the recent basic gas-proration order of the Kansas Corporation Commission.

G. L. Light, attorney for the 181 plaintiffs, said if the new order becomes effective the "situation between the Corporation Commission and the new Industrial Development Commission will be one state department working against another."

He contended the order would drive development of the field across the line into Oklahoma, contrary to efforts of the Industrial Commission to develop Kansas' industries.

HARRY B. HERSHEY, former chairman of the Illinois State Central Committee, is regarded as the candidate for governor supported by Governor Horner's state administration. He has pledged himself "for prevention of waste in the state's oil resources"

MISSISSIPPI

A BILL TO CONSOLIDATE all conservation bodies in Mississippi under one department was definitely killed in the house of representatives last week. House amendments stripped the bill of its primary points, after which Speaker Lumpkin, coauthor of the administration-sponsored bill, made a motion for indefinite postponement of all consideration of the matter. Revenue bills including those on taxes on leases and severance taxes are under consideration but strong opposition to them is growing.

ILLINOIS

FOUR CANDIDATES for governor, two Republicans and two Democrats, have declared themselves publicly during the current primary election campaign in Illinois on the critical issue of ultimate proration or control of the state's oil industry.

Marked by bitter interparty strife which has been reflected in a series of mass meetings in counties covering the oil basin, the question has transcended party lines.

At this time two candidates are regarded definitely as "conservatives" reportedly in favor of eventual "modified" control measures, Harry B. Hershey, Taylorville, former chairman of the Democratic State Central Committee and candidate of forces supporting the Governor Horner state administration, went on record at a meeting March 7 in Centralia "for prevention of waste in the natural oil resources and stimulation of that initiative which is so obviously necessary to the growth of the industry."

Mr. Hershey said he was "unalterably opposed to federal regulation of the oil industry in Illinois." His views reflect the attitude of Governor Horner and his aides, who hoped for creation of a "control agency" at a special legislative session which was to have been called in January.

Mr. Hershey's stand has also been taken by Dwight H. Green, of Chicago, Republican, but the latter's opponent, Richard J. Lyons, of Libertyville, has been outspoken in behalf of antiproration forces and is also opposed to a severance-tax measure.

Lieut. Gov. John Stelle, of McLeansboro, is the most active campaigner against proration. In an address delivered at Olney on March 5, he charged "Texas and Oklahoma oil interests" with exerting "considerable pressure in an effort to block development of Illinois oil fields. They are not interested in economic conditions in Illinois but are concerned chiefly with their own markets for oil."

Despite outcome of the April 9 election, state administration officials and congressional representatives are still pressing for a special legislative session this year.

MICHIGAN

P. J. HOFFMASTER, Michigan supervisor of wells, set March 15 for a public hearing on recommendations of the state Oil Advisory Board that production be limited in seven Michigan oil fields. The recommendations propose that allowable production in the Freeman-Redding field of Clare County be reduced 25 per cent, from 200 bbl. a day on 20-acre drilling units to 150 bbl., and from 100 bbl. to 75 bbl. on 10-acre units. Operators were invited to give testimony on cutting the proration limit in the Walker field of Kent County, Overisel, South Overisel and New Salem areas of Allegan County, now operating on an allowable production of 200 bbl. per well per day. The board will consider prorating the Wise field of Isabella County, where are located about 20 wells capable of a total of 2,000 bbl. a day.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Powerful Lever

Within a radius of less than 3,000 miles from New Orleans there is 76 per cent of the world's oil supply and known crude-oil reserves. It includes the petroleum of the North American continent and of South America, with the exception of the comparatively unimportant production of Argentina and Bolivia.

This area not only furnishes all of its own petroleum requirements but it is the most important source of supply for the rest of the world in quality and quantity.

As the war and the international situation move into an increasingly critical stage this concentration of world oil supply, in this country and within the immediate protection of the Monroe Doctrine, becomes of greater importance, perhaps the controlling factor in determining the destinies of the participants.

Russia, the second largest producing country, with the most important production outside the two American continents, consumes practically everything it produces; in fact, in recent months has been a substantial buyer of California oil products.

Outside Russia, Africa, Europe, Asia and Australia have to look to this country and the northern part of South America for more than half of their petroleum supply.

While this war has not reached an active phase anywhere except along the frigid Mannerheim line, military experts now agree, after 6 months' study, that the operation of modern war machinery is almost entirely dependent upon petroleum.

Germany, after several years of war preparation, built a military machine that in many respects has reached a perfection never attained in any previous conflict but it must have greater petroleum resources before this machine can function as intended.

This need may bring important shifts in the war fronts, involving not only Rumania, but the Mediterranean and the Persian Gulf countries of Iraq, Iran and other less important oil sections.

In the Far East, Japan, threatened with stoppage of supply from this country, looks to the East Indies, the only important but nevertheless wholly inadequate supply for that area.

Even a superficial study of these conditions leads inescapably to the conclusion that petroleum has become a major and indeed dominant factor in the carrying on of this war, with the possibility that the need for oil will change the war areas over night.

Of particular importance is the oil region fronting on the Caribbean Sea, including Trinidad, Venezuela, Colombia, Mexico, the Gulf Coast of this country, and the refineries of the West Indies. Within a thousand-mile radius are centered the crude production and the transportation and refining facilities serving a great section of the world with a large part of its requirements.

Not so large, but equally important, are the petroleum centers of the west and east coasts of this country.

This country and its friends to the north and south need a greater appreciation of the significance of their fortunate situation. This oil, in addition to being their most important defense asset, has played a primary part in the expansion of the peacetime activities of the two Americas, and in future growth will be of greater importance.

Adequate protection of these petroleum supplies of the present and future is an immediate responsibility of this Government. Furthermore, they provide a lever that may be used effectively towards bringing an early peace, to which this Government is now devoting special efforts.

The concentration of three-quarters of the world's oil, so essential in modern war and national defense, in the center of the Western Hemisphere presents a responsibility and an opportunity demanding grave consideration.

Octane-Problem Discussion to Be Feature of W.P.R.A. Program

The Western Petroleum Refiners Association in its annual meeting this year is bringing before its members outstanding speakers who will discuss problems in banking, transportation, and business in general. The meeting is being held at the Allis Hotel at Wichita, Kans., March 31, April 1 and 2.

E. J. Engel, president of the Santa Fe Railway, will speak Monday afternoon, April 1, on Oil and Transportation. Laird S. Dean, president of the Merchants National Bank, Topeka, Kans., will discuss the financial problems in the oil industry as well as other industries, and what industry may look forward to from the financial world. W. J. Cameron, of the Ford Motor Co., will speak Tuesday afternoon.

A paper on the octane problem, which has caused so much confusion in recent months, will be presented at the Monday afternoon session. The paper, the result of cooperative effort of several of the oil companies, will be given by W. W. Scheumann of the Cities Service Oil Co. The program follows:

Sunday, March 31

7-10:30 p.m.—Buffet supper (informal), compliments Ethyl Gasoline Corp. Ballroom.

Monday, April 1

9:30 a.m.—Technical session, Empire Room.—W. M. Carney, Lion Oil Refining Co., El Dorado, Ark., presiding.

Introductory remarks, L. D. Mann, Cities Service Oil Co., Tulsa, chairman manufacturing committee.

Tractor Fuels, Professors C. W. Smith and C. L. Zink, University of Nebraska.

Title to be announced, Lummus Co., New York.

Discussion will follow each paper.

2 p.m.—General session, Ballroom. R. R. Irwin, Socony-Vacuum Oil Co., Inc. (White Eagle division), Kansas City, Mo., presiding.

President's Annual Address, L. B. Simmons, Rock Island Refining Co., Duncan, Okla.

Appointment of committees.

Oil and Transportation, E. J. Engel, president, Santa Fe Railway, Chicago.

The Refiner's Will-o'-the-Wisp, W. W. Scheumann, Cities Service Oil Co., Tulsa.

6:30-10:30 p.m.—Pioneer party, Wichita Country Club, compliments of supply and transportation companies serving the refining industry.

Tuesday, April 2

9:30 a.m.—Technical session, Empire Room. R. W. Leslie, Skelly Oil Co., Eldorado, Kans., presiding.

Removal of Inorganic Salts From Petroleum, C. M. Blair, Tretolite Co., St. Louis, Mo.

Reforming, R. P. Mase, Mase-Turner Engineering Co., Tulsa.

2 p.m.—General session, Ballroom. R. W. McDowell, Mid-Continent Petroleum Corp., Tulsa, presiding.

Title to be announced, Laird S. Dean, president, Merchants National Bank, Topeka, Kans.

Title to be announced, W. J. Cameron, Ford Motor Co., Detroit, Mich.

Election of officers and directors.

7 p.m.—Dinner dance (informal), Ballroom.

Wednesday, April 3

9 a.m.—Inspection trip, Socony-Vacuum refinery, Augusta, Kans. (Buses leaving Allis Hotel promptly at 9 a.m. returning 12:30 p.m.)

Louisiana State Oil Records Ordered Thrown Open

NEW ORLEANS, La.—The Louisiana Supreme Court has voted unanimously to throw open the closely guarded records of the state Conservation Department, which opposition candidates during the recent gubernatorial primaries claimed contained many damning secrets involving political leaders.

The action was taken in sustaining an appeal court ruling that two representatives of the Citizens Voluntary Committee, which for months has been fighting to see the records, be given the right 2 weeks hence.

The books contain records of administration of state oil and mineral laws, which have been questioned by the federal Government. They were ordered closed for audit by Governor Long shortly after he took office

Texas Attorney General Opens Gasoline Probe

DALLAS, Tex.—Atty. Gen. Gerald Mann has begun an investigation into the retail-gasoline-price situation in Dallas and North Texas. Seventy witnesses were subpenaed before Justice of the Peace W. L. Sterrett by two assistants from the antitrust division, D. Burrell Davis and Frederik B. Isely.

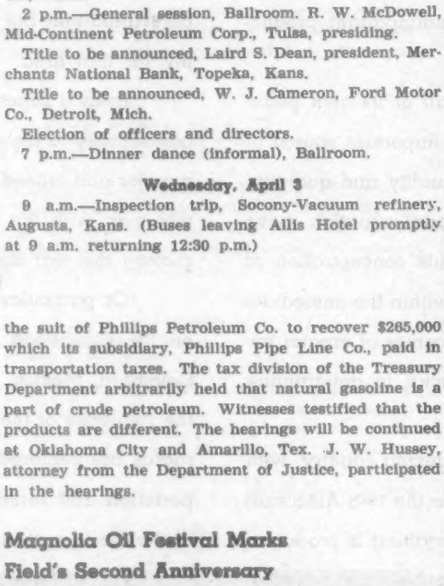
Witnesses included Dallas officials of several major companies, attorneys, agents, supervisors but principally station operators who lease from companies. Much of the examination was directed at retail prices and the use of certain brands of tires and other automobile accessories sold. The hearings were temporarily closed Monday but the inquiry may be reopened after information obtained from witnesses has been digested.

Hearings on Natural-Gasoline Transportation Tax

Herbert Giles, commissioner of the Court of Claims, Treasury Department, Washington, D. C., has been taking testimony in Tulsa and Bartlesville, Okla., in the suit of Phillips Petroleum Co. to recover $265,000 which its subsidiary, Phillips Pipe Line Co., paid in transportation taxes. The tax division of the Treasury Department arbitrarily held that natural gasoline is a part of crude petroleum. Witnesses testified that the products are different. The hearings will be continued at Oklahoma City and Amarillo, Tex. J. W. Hussey, attorney from the Department of Justice, participated in the hearings.

Magnolia Oil Festival Marks Field's Second Anniversary

The town of Magnolia, Ark., was scene of an oil festival last week, marking the second anniversary of the nearby field, Arkansas' greatest current oil reserve. Following a parade and coronation of a "petroleum queen," activity centered around the courthouse square, where derrick, christmas tree, lease tanks, complete with flare, had been rigged up. Harold B. Fell, independent operator of Ardmore, Okla., and Gov. Carl E. Bailey of Arkansas were the principal speakers, keynoting opposition to the Cole bill. Festival visitors witnessed completion of the Magnolia field's ninety-seventh oil well, and inspected the new Shell Oil Co., Inc., natural-gasoline plant placed on stream last week, utilizing all gas produced in the field for manufacture of natural gasoline and butanes.



Harold B. Fell, executive vice president, Independent Petroleum Association of America, sees the job well done as Gov. Carl Bailey of Arkansas crowns Miss Feral Dumas, Magnolia A. and M. sophomore, "Miss Petroleum I" at Magnolia's Oil Jubilee celebration

Oil Show in Amarillo

AMARILLO, Tex., Mar. 11.—Possibility of oil production within the city limits of Amarillo was seen with the report of an oil showing in the Canadian River Gas Co.'s No. 1 City of Amarillo in Thompson Park. Bottomed at 3,797 ft., where it is making gas, it bailed free oil resembling distillate on test.

THE MARKETS*

CRUDE OIL: An increase of 21,378 bbl. per day in United States production in the past week, bringing the total to 3,826,363 bbl. per day, may be attributed to California which showed a gain of nearly 30,000 bbl. per day over the previous week's output. Illinois increased over 10,000 bbl. per day. A decline of 86,000 bbl. a day was noted in East Texas.

REFINERY: Increasing consumption, along with evidence that flood of cheap material from Illinois crude is subsiding, imparted firmness to gasoline in the Mid-Continent region, but unsteadiness continues in coastal areas. Kerosene and tractor fuels increasingly active. Prices of heating oils drop under influence of warmer weather. Big accumulations of natural gasoline in Texas need outlets, and Oklahoma products cannot do better while these Texas stocks overhang the market. Lubricating oils softer.

TANK-WAGON AND POSTED DEALER: Standard of Indiana advanced subnormal tank-wagon gasoline prices to dealers and consumers in Indiana. The company also advanced subnormal prices of kerosene, tractor fuel and heater oil in most of its marketing territory. Continental reduced tank-wagon prices of kerosene at several Rocky Mountain points. Socony-Vacuum reduced dealer tank-wagon prices of gasoline 0.4 cent in metropolitan New York.

FINANCIAL: Erratic movement characterized the oil shares. Both new highs and new lows were recorded. Average of 30 representative stocks for week ended March 9: High, 26.36; low, 25.30; close, 26.04. Week ended March 2: High, 25.69; low, 25.06; close, 25.29.

*Detailed information in market section.

OIL COMPANY ANNUAL REPORTS

	Year	Net income	Earned per common share*
Atlantic Refining Co.	1939	$5,023,282	$1.66
	1938	4,310,659	1.40
Houston Oil Co.	1939	1,010,531	0.43
	1938	1,304,736	0.70
Lion Oil Refining	1939	652,362	1.50
	1938	912,483	2.09
Plymouth Oil Co.	1939	2,462,755	2.37
	1938	2,609,092	2.59
Pure Oil Co.	1939	8,290,418	1.11
	1938	5,412,903	0.38
Shell Union Oil	1939	11,800,000	0.77
	1938	11,318,423	0.72
Skelly Oil Co.	1939	2,360,783	1.99
	1938	2,650,054	2.27
South Penn Oil Co.	1939	2,837,042	2.84
	1938	1,441,818	1.44
Standard Oil (Ky.)	1939	3,979,562	1.53
	1938	3,779,706	1.45
Standard Oil (Ohio)	1939	5,602,499	6.64
	1938	1,964,605	1.81
Sun Oil Co.	1939	6,959,677	2.74
	1938	3,085,119	1.07
Kirby Petroleum	1939	30,494	0.06
	1938	70,872	0.14
Union Oil of California	1939	5,846,240	1.25
	1938	6,862,758	1.47
Pacific Western Oil	1939	813,689	0.81
	1938	1,217,378	1.22
Ohio Oil Co.	1939	1,492,086	†0.10
	1938	4,582,964	0.25
Barnsdall Oil Co.	1939	1,720,292	0.76
	1938	2,837,897	1.26
Ashland Refining Co.	1939	746,889	0.73
	1938	537,034	0.56
Texas Gulf Producing	1939	614,670	0.69
	1938	766,000	0.86
Sunray Oil Corp.	1939	605,552	0.25
	1938	569,314	0.23
Phillips Petroleum Co.	1939	9,833,314	2.21
	1938	9,049,122	2.03
Total 20 companies	1939	$72,682,137	
	1938	65,282,937	

*After allowing for preferred dividend requirements.
†Deficit or loss.

International

Rumania . .

Production Declined During Past Year

A NET decline of 317,191 metric tons (metric ton = 7 bbl.) in Rumanian petroleum exports in 1939 is shown by Moniteur du Petrole Roumain in its preliminary review for the past year. Total Rumanian petroleum exports declined to 4,177,571 tons.

Germany was the largest consumer of Rumanian petroleum exports accounting for 848,569 tons, or equal to 20.3 per cent of the aggregate. Italy received 636,760 metric tons of Rumanian oil in 1939 and Great Britain was the consignee for 635,734 tons of the total shipments. The following table shows the 1939 and 1938 exports of Rumanian petroleum by countries of destination:

Destination—	1939	1938
Germany	848,569	704,342
Italy	636,760	560,475
Great Britain	635,734	576,751
France	358,693	289,338
Czechoslovakia	436,584	294,898
Hungary	165,016	198,076
Belgium	144,446	120,089
Yugoslavia	149,769	143,156
Other countries	802,000	1,607,637
Total	4,177,571	4,494,762

Colombia . .

Crude-Oil Output Is Above Last Year

CRUDE-oil production in Colombia started off the new year at a rate of more than 7,500 bbl. per day higher than in 1939, but January output of 1,924,655 bbl., according to reports by the Ministry of National Economy in this country by the Department of Commerce, was about 3,300 bbl. daily less than in the final month of last year. January production of 62,086 bbl. daily compares with 65,394 bbl. per day in December 1939 and with 54,460 bbl. daily in January of last year.

Semiofficial figures for the entire year of 1939 show Colombia produced 22,191,859 bbl., a new high record for that country.

Russia . .

Black Sea Export Drop Is Caused By the War

SOVIET Russian petroleum exports through the Black Sea port of Istanbul dropped to 517,264 metric tons (metric ton = 7 bbl.) in 1939, the lowest level registered by that nation in modern times. The 1939 exports compare with 930.541 tons in 1938 and represent the low point of a steadily declining curve During the final months of 1939, U.S.S.R. petroleum exports from Batum went largely to Rumanian and Bulgarian ports with Germany the ultimate destination. Consequently, the political upheaval in Europe accounted for a portion of the sharp drop in 1939 because shipments to Rumania and Bulgaria did not pass through Istanbul and therefore are not included in the year's statistics from that port.

Under normal conditions, the bulk of Soviet Russia's export petroleum trade passes through Istanbul and for most of the period under consideration the following statistics for the past 3 years are representative of traffic. Exports by products and years for 1937, 1938 and 1939 in metric tons, follow:

Products—	1937	1938	1939
Lubricating oil	212,998	117,412	41,392
Fuel oils	741,554	410,001	287,204
Kerosene	163,887	64,662	35,992
Gasoline	434,287	336,643	142,059
Asphalt	.....	1,823	3,200
Paraffin	.....	.....	.....
Benzol	.....	.....	7,417
Totals	1,552,726	930,541	517,264

Italy . .

Yugoslavia Reports Offer of Gasoline

A DISPATCH from Belgrade to the New York Times says: Political importance is being given in diplomatic circles here to the announcement that Italy has offered 20,000 tons of gasoline, thought to be Mexican, to Yugoslavia at a price considerably lower than that at which Rumania is selling. Rumania is asking for payment in sound foreign currency. Italy is prepared to accept goods for half the purchase price.

At the same time, it is learned that 8,000 tons of high-grade aviation gasoline is being offered by Italy, to be paid for entirely in goods. This unexpected access to gasoline supplies is not only highly welcomed here, where stringent restrictions of night and week-end driving have been introduced, but it is also regarded as a sign of Italy's interest in assisting this country to maintain her armed strength at full efficiency. A squadron of Italian first-line airplanes was recently delivered here.

Bolivia . .

To Spend $2,098,750 In San Andita Field

PLANS to spend the equivalent of $2,098,750 to increase production in Bolivia's San Andita oil field and to expand refining facilities were announced last week in La Paz. The announcement said that most of the appropriation would be spent for equipment in the United States.

There has been no final settlement of the dispute between Standard Oil of Bolivia and the government over expulsion of the private company from its concessions 3 years ago this month. The Bolivian Government has been attempting to borrow money in the United States since the Pan-American conference late in 1939 and it was reported in New York that some settlement of the controversy with Standard Oil Co. (New Jersey) subsidiary may be reached before the loan can be considered.

In its plans to expand petroleum operations, Bolivia is interested in producing all internal gasoline requirements and in obtaining fuel and diesel oils which are now imported from various sources. Bolivia's projected gasoline requirements for 1940 total 164,000 bbl., compared with 42,000 bbl. consumed in 1939.

Mexico . .

No Confirmation of Reported Agreement

REPORTS persisted from Mexico City last week that a "basis of understanding" had been reached between the Mexican Government and the Sinclair companies leading to indemnification of the latter for oil properties expropriated in March 1938. No confirmation was obtainable from New York offices and some observers cling to the theory that the Mexican Government is "sending up another trial balloon" in an effort to break down the united front of the expropriated companies.

Events of last week included a visit to Mexico City by Francisco Castillo Najera, Mexican ambassador in Washington, who has figured prominently in expropriation negotiations. Ambassador Najera was quoted in Mexico City, upon arrival of his plane there, that a "basis of understanding" with the Sinclair companies has been reached which has brought final agreement within measurable distance.

The understanding with the Sinclair companies, said the ambassador, according to the New York Times, will be based on two main points. First, the Mexican Government will make a cash payment to the company as compensation for its expropriated properties and in return the companies will relinquish all further claims against the government. Second, a long-term contract will be concluded by which the Sinclair interests will undertake to purchase certain specified amounts of Mexican oil.

The inference was permitted to stand that Senor Najera's trip to Mexico City was for the purpose of laying the "basis of understanding" before President Cardenas and for seeking his approval for a continuation of negotiations.

The economy program pronounced as necessary in the petroleum industry by President Cardenas has had mixed reaction. Only three of the 32 sections of the Oil Workers Syndicate have so far endorsed the program calling for curtailment of personnel, wages, special benefits and overtime. Some of the sections have registered strong protest toward the economic program and much internal dissension is predicted by unbiased observers if the provisions enunciated by President Cardenas are placed in effect.

A close adviser of President Cardenas said the settlement plan with Sinclair companies involved little, or no cash, but that 9,000,000 bbl. of Mexican oil would be delivered to the company over a period of years in full settlement of claims for indemnity. Current value of the 9,000,000 bbl. of Mexican oil is estimated around $7,000,000. There have been dispatches in the past from Mexico indicating that the government's engineers would place the total indemnification figure for all expropriated oil properties at approximately $10,000,000. On the basis of reports on the Sinclair negotiations, it would seem that the final figure would be much above earlier inferences. Ambassador Najera was specific in denying that the rumored plan of settlement with Sinclair had received approval of the Department of State at Washington.

Natural-Gas News

Dates Set for West Virginia Gas-Meter School

At a meeting of the general committee held in Morgantown, W. Va., the dates of August 19, 20 and 21 were chosen for the third Appalachian Gas Measurement Short Course at the University of West Virginia, Morgantown.

In addition to selecting dates and formulating plans for this year's schools, the general committee established subcommittees as follows: Program committee, B. P. Stockwell, chairman, West Virginia Public Service Commission; housing and registration, W. A. Staab, chairman, West Virginia University; banquet and entertainment, A. D. MacLean, chairman, Pittsburgh Equitable Meter Co.; exhibits, J. W. Allison, chairman, Monongahela West Penn Public Service Co.; publications and publicity, R. S. Reed, Jr., chairman, Pittsburgh Equitable Meter Co.; rules, R. O. Borden, chairman, American Meter Co.; practical methods, report No. 1 on "Testing Positive Displacement Meters in the Field," J. E. Overbeck, chairman, Columbian Engineering Corp.; practical methods, report No. 2 on "Testing Orifice Meters," A. K. Kraus, chairman, Peoples Natural Gas Co.; educational, H. J. Wagner, chairman, Public Service Commission of West Virginia.

The general committee members shown in the accompanying photo are as follows:

Top row: W. A. Ehlers, Reynolds Gas Regulator Co.; J. W. Allison, Monongahela West Penn Public Service Co.; G. R. Spindler, West Virginia University; Edwin Robinson, West Virginia Oil and Natural Gas Association; W. A. Staab, West Virginia University; E. M. Lockwood, Sprague Meter Co.

Second row: C. B. Heist, Manufacturers Light & Heat Co.; A. F. Kraus, Peoples Natural Gas Co.; J. R. Sproat, Pittsburgh Equitable Meter Co.; H. J. Wagner, West Virginia Public Service Commission.

Front row: R. O. Borden, American Meter Co.; R. W. Hitchman, chairman, United Fuel Gas Co.; Allen D. MacLean, Pittsburgh Equitable Meter Co.; T. K. Spalding, Owens, Libbey-Owens Gas Department. Also present but not in the picture was B. P. Stockwell, West Virginia Public Service Commission.

Natural-Gas Consumption Is Increased Over 9 Per Cent

Customers of the natural-gas industry totaled 7,467,000 at the end of December and consumption for the year increased more than 9 per cent to 1,309,457,500,000 cu. ft., the American Gas Association reports.

The largest gain in consumption from a percentage standpoint was in the function of generating electricity. Electric-generation operations accounted for consumption of 191,295,900,000 cu. ft. in 1939, an increase of 12.5 per cent. From the standpoint of volume, industrial operations headed the list accounting for 626,096,400,000 cu. ft. for 1939, an increase of 10.7 per cent.

All classes of consumption increased to some extent. Domestic sales, including gas for house heating, increased 5.3 per cent to total 367,731,500,000 cu. ft.; commercial sales gained 7.9 per cent and aggregated 107,769,900,000 cu. ft. while miscellaneous consumption climbed to 16,563,800,000 cu. ft., compared to 15,764,000,000 cu. ft. in 1938.

Total revenue accruing to the natural-gas industry increased 7.1 per cent to $449,070,200 for the year. Revenue from domestic sales of $255,912,300 was up 4.7 per cent and represents more than 57 per cent of the grand total. Industrial and electric-generation revenue totaled $140,124,400, an increase of 12.1 per cent over 1938.

Review of F.P.C. Order Is Denied Gas Companies

DENVES, Colo.—The U. S. Circuit Court of Appeals for the tenth district sustained a motion filed by the Federal Power Commission for dismissal of an application of Canadian River Gas Co. and Colorado Interstate Gas Co. for a review of an order of the commission for an investigation of the companies. The court held the case is not reviewable at this time. The Power Commission ordered an investigation of structure and rates of the two companies, which they furnished under protest on the ground that the commission lacked jurisdiction. This protest was for a prohibitory injunction filed in July 1939.

In December 1938 the city of Denver filed a complaint with the commission attacking the gate rate at Denver as unjust, unreasonable and discriminatory, and asking that the commission determine what are fair rates. In the meantime, the investigation of rates and structure has continued and is nearing completion. Hearings probably will be held next summer at which time the question of jurisdiction most likely again will arise. The two companies operate a pipe line from the Amarillo field in Texas to Denver and Colorado-Wyoming Gas Co. buys gas from the Colorado-Interstate company and transports it to northern Colorado and Cheyenne, Wyo. The last named is affiliated with Public Service Co. of Colorado, the distributor in Denver and other cities.

Petroleum and Natural Gas Conference at Penn State

Four speakers have accepted invitations to address the Petroleum and Natural Gas Conference to be held at the Pennsylvania State College April 26 and 27, according to Dr. Sylvain J. Pirson of the college staff who is in charge of arrangements. The conference, conducted by the School of Mineral Industries is being resumed this spring after a lapse of 1 year.

The speakers who have thus far agreed to present papers are Dr. Lachlan Gilchrist, of Toronto, Can., who will discuss recent developments in surface investigations to locate oil and gas sands; M. B. Chittick who will discuss special and byproducts in refining; C. R. Fettke, Pittsburgh, who will speak on the deeper oil and gas sands in Pennsylvania; and F. W. Laverty who will discuss the application of retrograde condensation to eastern oil and gas production. The first two are scheduled to address the oil section division on the opening day and the other two at the gas session.

Dallas Gas and County Gas Merger Sought

DALLAS, Tex.—Merging of Dallas Gas Co. and County Gas Co. service in Dallas may enable the city to seek lower gas rates.

Dallas Gas Co. serves within the city limits of 1913 and County Gas Co. the local territory outside. Many present sections of Dallas are served by County Gas Co., but the city supervises only Dallas Gas Co.

Pipe-Line Activity

Sarnia Refinery Pipe Line Facilities to Be Enlarged

SARNIA, Ont.—The Transit & Storage Co. of Port Huron, Mich., controlling the lines supplying crude to the local refinery of Imperial Oil, Ltd., will enlarge its crude-pipe-line facilities at a cost of approximately $1,000,000. The new construction is being undertaken to safeguard the crude supply for the plant, which at present has an estimated capacity of 25,000 bbl. a day.

Plan 162-Mile Gas Line To Supply Saskatoon

SASKATOON, Sask.—The Saskatchewan Local Government Board has authorized a plebiscite in the city of Saskatoon on the granting of a natural-gas franchise to the Northern Natural Gas Co., subsidiary of Franco Oils, Ltd. A similar application in 1939 was turned down, owing to lack of definite evidence as to adequate gas reserves; but in the meantime comprehensive surveys and additional drilling proved adequate gas production.

About 80 per cent of the Saskatoon residents have signed for natural gas, so that approval of the franchise in the popular vote, to be taken early in April, is expected. The franchise as originally drafted was modified by stipulations that the company would not build a pipe line closer to the Alberta boundary than 200 ft., or link up with any Alberta production, without the express consent of the board.

The project involves construction of a 162-mile transmission line from the Lloydminster field to Saskatoon, with complete local distributing systems in Saskatoon, North Battleford and other communities along the route. Construction, it is said, will be commenced immediately the franchise is approved by the plebiscite, and at the same time extensive drilling operations will be undertaken in the Lloydminster and Unity areas to build up additional reserves. John K. Swanson will be general manager of the Northern Natural Gas Co.

Mo-Kan Files New Petition Against Columbia Gas

WASHINGTON, D. C.—Missouri-Kansas Pipe Line Co. has filed in the U. S. District Court at Wilmington, Del., a petition for an injunction to prevent Columbia Gas & Electric Corp. and three subsidiaries from "excluding" it from pipe-line service into Indiana, Ohio and Michigan.

Panhandle Eastern Report

Report of Panhandle Eastern Pipe Line Co. and subsidiaries for year ended December 31, 1938, shows net profit of $4,363,399 after provision for retirements, depletion, amortization, taxes, interest, etc. This compares with net profit of $3,059,224 in 1938.

Fundamental Thermodynamics, A.C.S. Symposium Topic

To aid the petroleum industry in producing superfuels for aircraft and automobiles and to promote the orderly expansion of the industry as a source of synthetic organic chemicals, the American Chemical Society will hold a national symposium on "Fundamental Thermodynamics of Hydrocarbons and Their Derivatives" at its ninety-ninth meeting in Cincinnati, Ohio, April 8 to 12.

Dr. Frederick D. Rossini, chief of the section on thermochemistry and constitution of petroleum of the National Bureau of Standards, Washington, D.C., will be chairman.

Natural Gasoline

Field and Plant Men Will Again Have Entire Day at N. G. A. A. Convention

THE nineteenth annual convention of the Natural Gasoline Association of America, scheduled for May 15-17 at the Hotel Tulsa, Tulsa, will again devote an entire day to the "operating kinks" session for field and plant men of the natural-gasoline industry, according to a recent announcement of William F. Lowe, secretary of the association.

Originally begun as an experiment to stimulate discussion of problems by operating men, this program feature has become one of the principal attractions of the convention for plant superintendents and field foremen as well as for engineers and executives. The session takes the form of a prize contest in which operating men compete with their original ideas for doing any job within their province in a better, cheaper or safer way. The whole day of Friday, May 17, will be devoted to these discussions and a total of $165 is to be distributed in prizes.

In supporting the suggestion to continue the contest again this year, George P. Bunn, Phillips Petroleum Co., president of the association, asserted that its value had increased every year since its inception. "This is true not only of the quality of the entries, but in the presentation and discussion," he stated. "Five years ago when we set aside but 2 hours for the first 'kinks' session, there were only 31 entries and not more than 75 men attended the discussions. Last year there were 105 entries and the huge ballroom was full of men listening to the presentations and taking notes for an entire day. No finer opportunity has ever been given to field and plant men to demonstrate their ability to improve methods, tools and operations to the benefit of their companies and the industry as a whole. Natural-gasoline manufacturers will be well repaid by sending their plant and field men to Tulsa for at least this portion of the convention program."

The operating ideas submitted are divided into four classes by the judges and prizes of $15, $10, $5, and $3 are awarded in each class for the outstanding entries. A grand prize of $25 is awarded for the most valuable offering in all classes. Judging will be on a basis of practical application and need; labor, time and money-saving features; and originality. Almost all "kinks" are concerned with special tools, new or easier methods, safety devices, short-cut operations, unique applications, etc., and may apply in any one of the following classifications:

A. Operation or maintenance of engines, compressors, boilers, turbines, electric motors or generators.

B. Volumetric measurement, metering, temperature, pressure, volume or liquid-level controlling, laboratory equipment or methods, loading or handling of plant products.

C. Distillation, fractionation, absorption, or treating of gas, gasoline or oil; general processing; storage of gasoline.

D. Field operations, pipe line, general maintenance, accounting, and record keeping. Any other phase of the natural-gasoline industry not covered in the above classes.

The program committee consisting of H. W. Harts, Warren Petroleum Corp., Tulsa, chairman; W. F. Fulton, United Gas Pipe Line Co., Houston, Tex.; J. R. Jarvis, Lone Star Gasoline Co., Dallas, Tex.; G. W. McCullough, Phillips Petroleum Co., Bartlesville; C. R. Williams, Continental Oil Co., Ponca City; D. M. Wolfe, Standard Oil Co. of California, San Francisco; and R. A. Worley, Parade Gasoline Co., Shreveport, La., has announced the following rules for submission of entries in this contest:

1. Any employe of a natural-gasoline manufacturer may submit one or more "operating kinks" ideas.

2. Permission of the employer must be secured before any idea is submitted.

3. Each idea must be submitted in writing and two copies of each must be presented in the form designated on the "operating kink" blanks which may be secured from the Natural Gasoline Association of America, 923 Kennedy Building, Tulsa.

4. One clear drawing, in ink with clear lettering, or distinct photograph or blueprint may be submitted with each entry, though none of these should exceed 12 in. by 14 in. in size. Larger drawings are difficult to reduce for the making of lantern slides.

5. Not more than five minutes' time will be allotted for the explanation of any single entry.

6. The originator of the kink, although urged to do so, need not be present to explain his idea.

7. Prize awards are to be made by a committee of gasoline-plant operators, and their decisions will be final.

8. All "operating kink" entries should be in the N.G.A.A. offices by May 5, 1940, in order that the judges may have ample time to study and classify the entries before the meeting date.

Natural-gasoline plant built by Union Oil Co. and Superior Oil Co. which was recently put in operation in the Rio Bravo field, California. Direct-fired heaters are used and processing is carried out at 500-lb. pressure

Refinery Expansion

Canadian Oil Companies, Ltd., To Remodel Its Plant

Canadian Oil Companies, Ltd., Petrolia, Ont., has just signed a license agreement with Universal Oil Products Co. and will at once remodel its present topping and cracking unit in line with the latest Dubbs operating methods, to increase gasoline yield and improve octane rating. At present the company is operating a cracking unit of another design. As revamped, the unit will crack about 1,300 bbl. a day of topped crude. The plant will run about 2,800 bbl. a day of Illinois crude. Equipment will also be added to reform 500 bbl. of straightrun gasoline and naphtha per day.

A U.O.P. catalytic polymerization unit to produce polymer gasoline from the cracked gases will be a feature of the refinery.

In remodeling the cracking unit, provision will be made for future conversion to two-coil operation, having a cracking capacity of 2,000 bbl. per day.

The company will lay a second pipe line from Froomfield, on the St. Clair River, to its plant here. Materials have been ordered and work will start as soon as the frost is out of the ground. Two additional storage tanks with aggregate capacity of 82,000 bbl. will also be erected. The company already has a crude line from Froomfield, where it maintains a marine depot, pumping station and two tanks of 82,000 and 25,000-bbl. capacity.

John Irwin is president of Canadian Oil Companies, Ltd., Frank C. West is vice president, Earl A. Smith is refinery superintendent, and V. Norwood, refinery technologist.

Union Oil Co. Constructing An Alkylation Plant

LOS ANGELES.—Union Oil Co. of California is constructing an alkylation plant at its refinery at Wilmington, which is to be completed soon to make high-octane aviation gasoline. The company will also install a coking unit, a hydroformer and a polymerization plant.

Universal and Phillips In Patent Agreement

CHICAGO, Mar. 11.—Universal Oil Products Co. and Phillips Petroleum Co. have consummated an agreement which substantially enhances the patent position of each company. Universal has acquired rights to license those thermal and catalytic patents of Phillips Petroleum Co. pertaining to the manufacture of motor fuel from oil or gas. Among other considerations, Phillips acquires the right to use in its own operations all of Universal's patents, including catalytic processes. One of Phillips' most recent developments is the commercial manufacture of neohexane, a new commodity which makes it possible to produce gasoline of 115-octane and higher.

Phillips' gasoline sweetening and desulfurizing processes presently licensed by its subsidiary, Perco, Inc., are specifically excluded from the agreement.

Refiners Credit Executives Meet in Toronto in May

Credit executives of the petroleum refining industry will gather at the Royal York Hotel in Toronto, Can., on May 19-23 for the forty-fifth annual congress of the National Association of Credit Men. This year the congress will be international in scope since the membership of the Canadian Credit Men's Trust Association, Ltd., will also be active participants.

Natural Gasoline and Carbon Black in Texas

Daily production of natural gas in Texas during January 1940 was 4,198,780,000 cu. ft. of which 1,972,970,000 cu. ft. was sweet gas, 745,767,000 cu. ft. was sour gas, and 1,217,672,000 cu. ft. was casing-head. Total production shows an increase of 1.3 per cent over December 1939 and 23.5 per cent over January.

Sweet and sour-gas production increased 6 per cent over December 1939, while casing-head gas shows a drop of 10.05 per cent.

Ultimate gas distribution—	Daily average	Per cent
Extraction loss in gasoline plants	142,336,000	3.39
To pipe lines for light and fuel	1,539,992,000	36.68
Plant fuel—lease operations	623,315,000	14.84
Gas lift	115,169,000	2.74
To carbon plants	909,721,000	21.67
Vented to air	373,626,000	8.90
Repressuring	494,618,000	11.78

Production of natural gasoline was 1,935,306 gal. daily, being a decrease of 261,811 gal. under December while daily carbon-black output of 1,320,944 lb. was practically unchanged.

Purchasing Agents Committee Named for Tulsa Exposition

TO encourage attendance among purchasing agents of the petroleum industry at the 1940 International Petroleum Exposition to be held in Tulsa May 18 to 25, a purchasing agents committee has been appointed, to be headed by H. M. Cosgrove, executive secretary, Purchasing Agents Association of Tulsa.

Members of the committee will assist in the naming of the "Grand Old Man" of the purchasing agents throughout the oil industry. Their nominations for this honor will be submitted through the old-timers committee under the chairmanship of H. R. Gruber, Tulsa. Suggestions for the man to receive this honor should be sent to Mr. Cosgrove.

Members of the committee include: F. W. Wedrich, Jr., Kendall Refining Co., Bradford, Pa.; B. Wojciak, Deep Rock Oil Co., Chicago; G. L. Parsons, Pure Oil Co., Chicago; D. L. Beatty, American Liberty Oil Co., Dallas; I. C. Jared, Sun Oil Co., Dallas; J. T. Rankin, Texas Co., Chicago; J. C. Davis, Texas Pacific Coal & Oil Co., Fort Worth; C. S. Youngblood, Gulf Production Co., Fort Worth; L. W. Crawford, Gulf Refining Co., Houston; O. S. Cummings, Houston Oil Co., Houston; W. G. Freitag, Republic Production Co., Houston; D. W. Hutchinson, Crown Central Petroleum Corp., Houston; H. M. Lingle, Humble Pipe Line Co., Houston; J. E. Nolen, Texas Co., Houston; Frank Watts, Humble Oil Co., Houston; O. D. Storey, Shell Oil Co., Inc., Houston; E. W. Beck, General Petroleum Corp., Los Angeles; William C. Brooks, Standard Oil Co. of California, Los Angeles; H. C. Farquhar and E. H. Weaver, Union Oil Co., Los Angeles; W. C. Wickersham, Belridge Oil Co., Los Angeles; C. L. Boyle, Cities Service Oil Co., Boston; C. J. Alexander, Shell Oil Co., Inc., New Orleans; W. N. Cottrell, Standard Oil Co. of Louisiana, New Orleans; J. G. Bohart, Sinclair Refining Co., New York; Arthur Jungdahl, Tide Water Associated Oil Co., New York.

Ward Casterson, Standard Oil Co. of New Jersey, New York; Joseph M. Sitler, Standard Oil Co. of New Jersey, New York; Joseph R. Taylor, Socony-Vacuum Oil Co., Inc., New York; J. A. Whiteley, Pan American Petroleum & Transport Co., New York; F. D. Bryant, Standard Oil Co. of California, San Francisco; J. C. Storey and W. H. Bratches, Shell Oil Co., Inc., San Francisco; W. M. Sturgess, Anderson-Prichard Oil Co., Oklahoma City; Henry Thomas and R. A. Hurst, Sun Oil Co., Philadelphia; W. F. Wilson, Sun Oil Co., Beaumont, Tex.; T. C. Haller, Sun Oil Co., Evansville, Ind.; Donald G. Clark, Gulf Oil Corp., Pittsburgh; C. B. Singleton, Shell Oil Co., Inc., St. Louis.

W. S. Ritchie, Imperial Oil Co., Ltd., Montreal; J. K. White, British American Oil Co., Ltd., Montreal; John Lucas, Arkansas Natural Gas Corp., Shreveport, La.; H. M. Byllesby, Kentucky-West Virginia Gas Co., Ashland, Ky.; Harris Bateman, Cities Service Oil Co., Bartlesville, Okla.; O. G. Jackson, El Dorado Refining Co., Eldorado, Kans.; W. H. O'Connor, Continental Oil Co., Ponca City, Okla.; H. D. Patridge, Indian Territory Illuminating Oil Co., Bartlesville, Okla.; Guy Proctor, Derby Oil Co., Wichita, Kans.; H. G. Shaw, Vickers Petroleum Co., Wichita, Kans.; E. L. Welch, Sand Springs Home Interests, Sand Springs, Okla.

M. B. Heine, Phillips Petroleum Co., Bartlesville, Okla.; C. M. Taylor, Indian Territory Illuminating Oil Co., Bartlesville; C. J. Foster, Deep Rock Oil Corp., Chicago; S. A. White, National Refining Co., Cleveland, Ohio; R. W. Swartz, Texas Gulf Sulphur Co., Newgulf, Tex.; Frank W. Holloway, Freeport Sulphur Co., Freeport, Tex.; J. Z. Hill, Gulf Pipe Line Co., Houston; J. E. Bowes, Skelly Oil Co., Kansas City; W. S. Cederlof, Barnsdall Oil Co., Los Angeles; A. A. Pateracki, Wilshire Oil Co., Los Angeles; R. A. Porter, Standard Oil Co. of California, Los Angeles; Joseph B. Murphy, Shell Oil Co., Inc., New York; James MacPherson, Standard Oil Co. of California, San Francisco; Walter Brubach, Gulf Oil Corp., Pittsburgh; L. C. Murphy, Shell Oil Co., Inc., St. Louis; R. L. Hummell, Sun Oil Co., Toledo, Ohio; George Evans and Jack Boyles, Continental Oil Co., Ponca City, Okla.

Tulsans included on the committee are: W. H. Barclay, Darby Petroleum Co.; Leon Booth, Selby Oil Co.; J. E. Boydstun, Midstates Oil Corp.; M. F. Bridges, Tide Water Associated Oil Co.; R. R. Burris, Sun Oil Co.; R. E. Campbell, Sunray Oil Co.; E. A. Cook, Amerada Petroleum Corp.; H. R. Dean, Devonian Oil Co.; T. H. Flanagan, Gaso Pump & Burner Manufacturing Co.; J. R. Freeman, Carter Oil Co.; George Fritz, Superior Oil Corp.; V. C. Fuller, Gulf Oil Corp.; J. S. Hawley, Stanolind Oil & Gas Co.; W. L. James, Stanolind Oil & Gas Co.; F. A. Kirkland, Kewanee Oil & Gas Co.; R. G. Martin, Deep Rock Oil Co.; O. E. McClatchey, Barnsdall Oil Co.; C. G. McLaren, Shell Oil Co., Inc.; J. H. Naron, Bell Oil & Gas Co.; W. A. Noel, Oklahoma Natural Gas Co.; C. A. Prichard, Mid-Continent Petroleum Corp.; F. W. Robertson, Skelly Oil Co.; C. D. Taylor, Barnsdall Oil Co.; F. E. Warterfield, Jr., Oklahoma Pipe Line Co.; J. H. Wolfe, British American Oil Producing Co.; H. A. Woodard, Sinclair Prairie Oil Co.; J. W. Shields, Pure Oil Co.; E. R. Welch, Tulsa Purchasing Agents Association; L. M. Morris, Oklahoma Natural Gas Co.; George Stroup, Tide Water Associated Oil Co.; G. H. Fagaines, Gulf Oil Corp.; J. R. Stockton, Mid-Continent Petroleum Corp.; E. J. Sour, Skelly Oil Co., and K. G. Manning, Texas-Empire Pipe Line Co.

DEATHS

FRANK O. FREESE, Houston, Tex., who served as secretary and treasurer of Humble Oil & Refining Co. until his retirement 2 years ago, died March 8.

JOHN A. GEISMAR, 61, president of the National Supply Co., died Tuesday, March 5, in Toledo, Ohio, after an illness of several months. He was connected with

the company for 40 years, and was one of the pioneers of the oil industry. Born in Fort Wayne, Ind., October 2, 1878, he moved to Toledo in 1901, entering the employ of the National Supply Co. in the mill and railway department as a keeper of stock records and soon was appointed traveling representative in Michigan. In 1906 he was made manager of the machinery and factory-supplies department. He held this position until 1919 when he was made director of merchandising of the entire company. In 1923 he was promoted to assistant general manager, and in 1924 was named vice president and general manager, which he held until April 1939, when he assumed the presidency. He was an organizer of the Petroleum Equipment Suppliers Association and later served as its president.

WILLIAM RICHARD BRADEN, 37, president of the Braden Steel Co., vice president of Braden Winch Co., and general manager of the Braden properties, died March 7 in Tulsa. Born in Sewickley, Pa., he finished his schooling in the East before coming to Oklahoma in 1922 where his father, Glenn T. Braden, one of the early oil and gas pioneers was, with T. N. Barnsdall, one of the founders of the Oklahoma Natural Gas Co. Young Braden became secretary-treasurer of the Oklahoma Contracting Co., which had a contract for the building of the oil pipe line for the Sinclair and Stanolind companies from the Teapot dome field in Wyoming, to Kansas. Following his father's death in 1923, Mr. Braden became one of the trustees of the Braden company, which operated properties of his father's estate. In 1932 he became general manager of the properties and president and general manager of the Braden Steel Co.

CHARLES ARTHUR WHITE, 58, secretary-treasurer of the Leeds & Northrup Co., died March 2 at Germantown Hospital in Philadelphia.

J. A. L. HENDERSON, Ph.D., consulting engineer, London, England, long associated with the oil industry in Canada, died February 4 in England.

JOHN McNEIL, 57, vice president of Imperial Oil, Ltd., died at Vancouver, B. C., on March 3. He entered the oil business in 1899 with the Grant-Hamilton Oil Co., continuing with the Canadian Oil Co., and later joining Imperial Oil.

HARRY A. NEDOM, 45, independent geologist, Tulsa, died March 7. Graduated from the University of Nebraska, he had a position for 2 years with Standard Oil Co. of New Jersey, serving in South America. He later became a professor of geology at Nebraska University before moving to Okmulgee to set up private practice.

WALTER JAMES GUTHRIE, 75, Pittsburgh oil and steel man, died recently at his winter home in Miami, Fla. He was born in Apollo, Pa., and was admitted to the bar in 1887, beginning his practice in Apollo. From 1907 to 1920, he was secretary and attorney for Gulf Oil Corp., Pittsburgh. At the time of his retirement in 1937, Mr. Guthrie was associate general counsel and secretary for Gulf Oil Corp., Gulf Refining Co., Mexican Gulf Oil Co., Western Gulf Oil Co., Venezuela Gulf Oil Co., Gulf Exploration Co., American International Fuel & Petroleum Co., and Gulf Research & Development Co.

JAMES J. MAGUIRE, manager of the marine transportation department of Socony-Vacuum Oil Co., Inc., died last week. Born in Boston, Mass., March 2, 1875, he joined Waters-Pierce Oil Co. and entered the service of Vacuum Oil Co. in 1914, going to Cape Town as manager of the Vacuum Oil Co. of South Africa a year later. In 1921 he returned to New York in charge of Vacuum Oil Co.'s operations in Central Europe and South Africa. He was elected a director in 1930. In the merger in 1931 he joined the marine transportation department of Socony-Vacuum Oil Co., Inc., later becoming manager in charge of its large fleet.

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Qualifications:

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Known as "Type JS." Four-cycle Diesel. Incorporates field-proved features of its predecessors (Types JT and JTB) . . . has greater overall efficiency, greater economy of operation and maintenance, greater horsepower.

TYPICAL FEATURES . . .

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Built in 5, 6, 7, and 8-cylinder units, covering a range of from 430 to 675 horsepower at conservative speeds. ***Further details gladly supplied on request.***

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DEPENDABLE! Seven, 340 hp, Type JT 6-cylinder Diesels, installed in three separate stations, drive electric generators on an oil line in East Texas. (The new Type JS is an even better Diesel!)

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Service on Active Fields

SEMINOLE FIELD, GAINES COUNTY, WEST TEXAS

Compiled by The Oil and Gas Journal

Approved name

Seminole field.

Geographic location

In central Gaines County, near the town of Seminole, from which it takes its name. Gaines County is in West Texas, in the area known as the North Permian basin, and borders on New Mexico to the west.

Principal towns and cities near the field

The town of Seminole, county seat of Gaines County, lies 1½ miles to the southeast of the field. Odessa and Midland are 62 and 72 miles south, respectively; Hobbs, N. M., is 30 miles west; Seagraves 17 miles north, and Lubbock 80 miles north.

Cities and towns where supply companies have branches

Majority of the field's supplies are trucked from Hobbs, which has many supply stores, acidizing, treating, and cementing companies, and well-servicing companies. Several supply companies have stores in Seminole and Seagraves. All supply companies serving the Permian basin have stores in Odessa.

Railways serving the area

The Texas-Pacific Railroad's main line runs through Odessa and Monahans. At the latter a branch line (Texas-New Mexico) connects and runs north through Hobbs to Lovington. The Santa Fe main line from eastern Texas cities to Amarillo and westward passes through Lubbock with a spur line (Panhandle & Santa Fe) running to Seagraves and Seminole.

Character of roads

State Highways 15 and 51, both first-class paved roads, intersect at Seminole. Highway 15 at present detours through the field. Lease roads are improved and much better than ordinarily found in oil fields due to the nature of the terrain.

Trucking companies

Some three or four trucking companies operate from Seminole and Seagraves, but most hauling is done by Hobbs or Odessa concerns.

Hotels and other accommodations

Limited hotel accommodations are available at Seminole and Seagraves, both of which have populations of some 3,000. Adequate facilities are available in Hobbs, Midland, Lubbock, or Odessa.

Schools and churches

Small churches and schools exist in Seminole and Seagraves, with the other named cities having larger and more numerous institutions. Texas Technological College, with an enrollment of about 3,500, is located at Lubbock.

Electric power and gas companies

Electric power lines have not been extended into the field from Seminole. No trunk gas lines serve the field, but as plenty of gas is available from wells, operators lay their own lines to drilling wells.

Development

Discovery oil well in the field was Amerada Petroleum Corp. and others' No. 1-A S. J. Averitt-Ohio, C NE NE Section 228, W.T. R.R. Survey, Block G, completed on January 8, 1937, for 234 bbl. daily in a Permian lime pay at 5,010-32 ft., flowing through 1-in. choke. First well in the field was W. T. Walsh and Harry Adams' No. 1 S. J. Everitt, to which the No. 1-A was a twin location, completed on March 15, 1936, for a gas well, but was later abandoned.

At the first of 1938 four producers had been completed, all in the discovery-well area. First major extension was Amerada's No. 1 J. B. Robertson, in SW SW Section 196, completed for 146 bbl. of oil daily to extend the field 1 mile to the east. In January the well was carried to 5,245 ft. and recompleted for an initial potential of 460 bbl. daily.) During 1938 six more wells were completed to bring the total to 10 at the first of 1939. On June 1, 1938, Osage Drilling Co. extended the field 4 miles to the northwest upon completion of its No. 1 T. S. Riley, SW NW Section 249. This extensioner was completed for an initial potential of 135 bbl. in pay at 4,940-5,098 ft. At the close of 1938 the field received its third major extension upon the completion of Adams & Bradley's No. 1 Crain, SW NW Section 216, for an initial potential of 143 bbl. This producer extended production 2 miles east in the northern section of the field and 4 miles due north of the discovery-well area.

One offset has been completed to this producer, 12 have been completed in the Riley area, 11 in the discovery-well area and Robertson area, and three producers in the area between the north and south sections of the field. Due to lack of pipe-line outlet, and the fact that early wells in the field were of low potential and had high gas-oil ratios, development has been quite slow. With the discovery of a deeper, better-pay section development recently began to be accelerated.

Completions to date

On March 9 there were 37 producers in the field, owned as follows:

Amerada Petroleum Corp.	10
Atlantic Refining Co.	2
Atlantic-Osage Drilling Co.	4
Adams & Bradley	2
Magnolia Petroleum Co.	3
Magnolia-Atlantic	2
Humble-Texas Pacific Coal & Oil Co.	2
Skelly Oil Co.	1
Ohio Oil Co.	4
Shell Oil Co., Inc.	1
Osage Drilling Co.	5
Walsh & Adams	1

Number of operations

On March 9 there were 6 wells drilling and 6 active locations

Future activity

Development of the field at any considerable rate was started just some months ago after the deep-pay section was opened, and has now reached a stage where activity will probably remain at its present level or higher until the field is drilled up. Lack of pipeline outlet has had much to do with the field's lack of development, but this will be remedied soon as a pipe line is now being laid. Limits of the field at the present time cover approximately 8,300 acres. Thus, using a well spacing of 40 acres, upon which pattern the field is being developed, it is probable that at least 180 more holes will be drilled in the field. Four dry holes on the north, south, and west tend to establish the field's possible limits in those directions, but future drilling is expected to extend production farther to the east and probably to the south.

Companies owning leases

In addition to the companies named having producers in the field, the following companies have acreage within the field's productive limits or in the surrounding spread: Barnsdall Oil Co., Devonian Oil Co., Honolulu Oil Corp., Standard Oil Co. of Texas, Texas Co., Republic Producing Co., Skelly Oil Co., and Tide Water Associated Oil Co.

General geology

The field is believed to be located on the northern continuation of the east rim of the central-basin platform in line with the Yates, Gulf-McElroy, Foster, Goldsmith, Means, and others to the south, and the great Wasson field farther north. Type structure is thought to be an anticlinal dome, running northwest and southeast. Crest of the anticline roughly conforms to the road shown on the map, running to the northwest from Seminole. The structure dips quite rapidly on the east and west sides, with that of the west being at a faster rate than on the east. As an illustration of the northwest

dip of the structure, geological markers of one well in the discovery-well area (Shell) and another to the northwest area (Amerada) are as follows:

	Shell's No. 1 Northrup, NW NW Sec. 220 (ft.)	Amerada's No. 1 Auten, SW SW Sec. 267 (ft.)
Elevation	3,322	3,392
Top anhydrite	1,968	2,111
Top salt	2,030	
Top Yates	3,050	3,220
Top lime	4,100	4,270
Top white lime	4,545	4,893
Top pay	5,010	5,200
Total depth	5,032	5,315

Production is obtained from a dolomitic limestone in the Big lime of Permian, occurring in somewhat lenticular zones of saturation through a +100-ft. pay section with an average of approximately 50 ft. of net saturation. A relatively low percentage of core recovery is obtained in the pay section, thus making porosity determinations somewhat impractical. On the south end of the field the upper portion of the pay section is quite gassy, with the gas-oil contact established at approximately —1,700 ft. In the north end, where wells are lower on structure only little formation gas exists. Present level of bottom-hole water has been established at about — 1,950 ft.

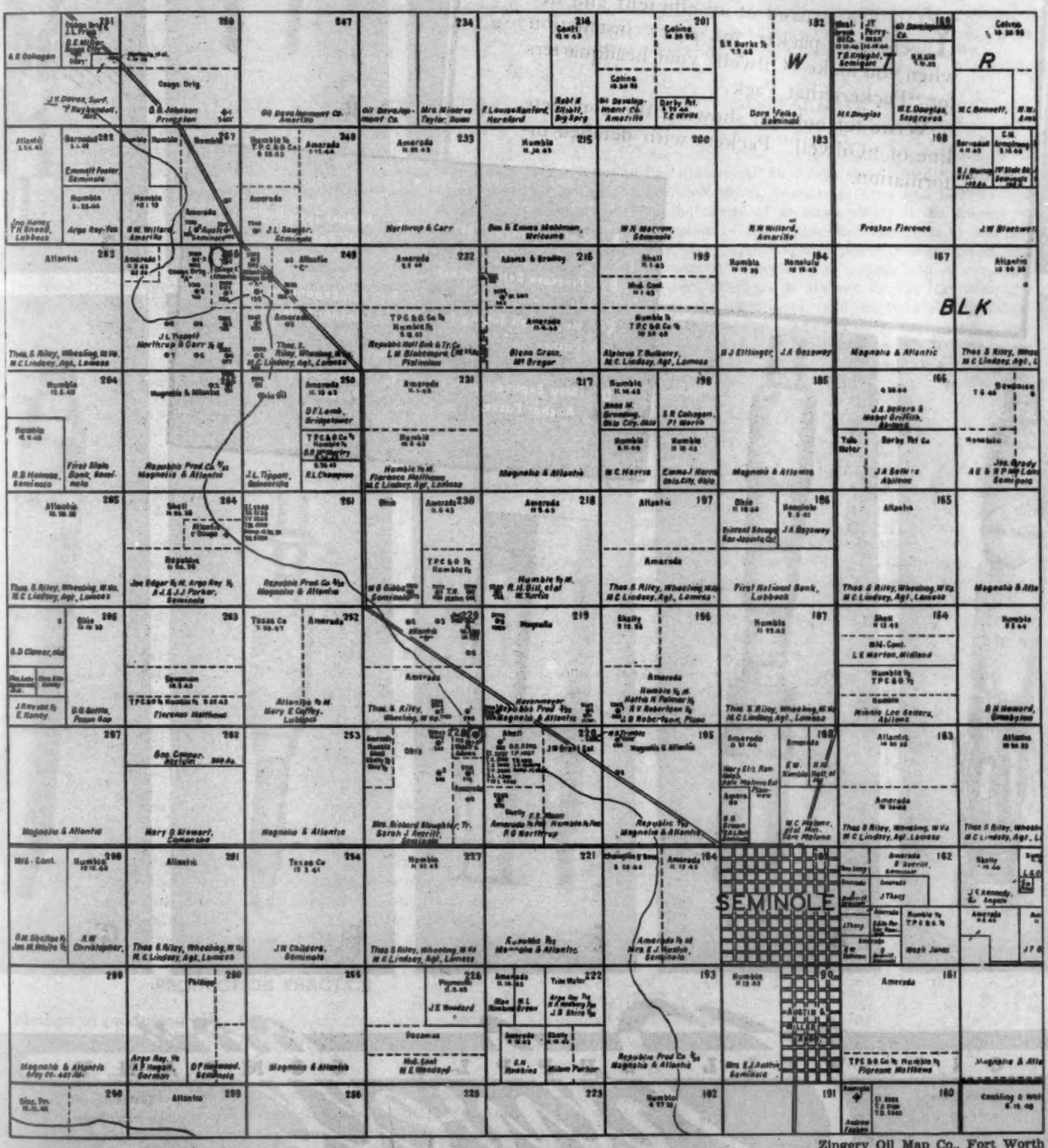
DRILLING CONDITIONS

Derricks

The 5,200-ft. drilling is done with 122-ft. derricks mounted on conventional steel substructures.

Type drilling equipment

Both steam and diesel rotary rigs are used, the steam rigs using three 125-hp. boilers usually. The diesel rigs usually consist of 200-225-hp. engines to operate the conventional draw works, rotary table and mud pump.



Zingery Oil Map Co., Fort Worth

Seminole field, Gaines County, Texas

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G Regular Gas Anchor Packer

OIL WELL SUPPLY COMPANY

"Oilwell"

Fuel

Gas for steam rigs is supplied by producing wells in the field through company lines laid to the well location. Diesel fuel is trucked in.

Speed and cost of drilling

Usual practice is to drill in with rotary so that wells are completed in the tanks in about 30 to 35 days at a cost of about $45,000.

Character of mud

Mud of about 9.5 to 10-lb. weight is used in drilling below the surface hole due to a tendency of the red beds to cave. If the casing program calls for a second string of casing to be set on the top of the Yates sand this weight mud has been found satisfactory. Some operators, however, carry open hole below the red beds, especially in the north end of the field where less high-pressure gas is encountered in the Yates. Some operators increase their mud weight to 14 or 15 lb. to prevent blowouts when this high-pressure gas is encountered, while others allow the well to blow until pressure has declined sufficiently to allow drilling to be resumed.

Water supply

Drilling water is obtained from a water sand encountered at about 85 ft.

Size of hole and casing program

Two casing programs are being followed in the field. The first, mostly widely used in the south portion, is as follows: About 200 ft. of 13-in. surface casing is set. Hole is then carried to the top of the Yates sand, where some 3,100 ft. of 9¾-in. pipe is set as an intermediate string. Hole is then carried to below the gas-oil contact and about 5,050 ft. of oil string cemented about 1,000 ft. above the shoe. In the north end, where less high-pressure gas is encountered in the Yates sand, the casing program usually followed is that an 8⅝-in. string is set through the red beds into the anhydrite and then open hole carried to the gas-oil contact, where the oil string is set. Field rules just issued by the Railroad Commission provide that an intermediate string be set, so that in the future only the first mentioned casing program will be used.

Type of bits used

Some operators use rock bits all the way, while others dig to the surface casing seat with rock bits and then switch to drag bits to about 1,600 ft.; then rock bits to total depth. From about 25 to 30 bits are required on these wells.

Completion methods

All wells have been completed with rotary tools, using the pressure-drilling method with oil as a circulating fluid.

Shooting and acidizing

Generally wells are acidized using 1,000 or 2,000 gal.; some, however, have been treated with as much as 5,000 to 7,000 gal. Earlier wells were completed with comparatively low initial potentials, none being over 300 bbl. daily. Opening of the deeper pay section greatly increased the attractiveness of the drilling, so that by acidizing average initial potential is now in the neighborhood of 800 or 900 bbl.

Gas hazard

Gas in the Yates sand is frequently encountered at pressures as high as 2,200 to 2,300 lb. Some operators keep their wells under control by increasing the mud weight as the top of the Yates is approached, and/or set an intermediate string as explained above to prevent loss of the hole. Others permit the head of gas to blow off and then resume drilling. This hazard is mostly confined to south-side wells, as in the northern section of the field the gas pressures and volumes are more easily handled.

PRODUCTION PRACTICE

Method of producing oil

At the present time all wells are flowing naturally.

Separators and tankage

Due to the field being in its first stage of development and but few leases having more than one well, most producers are individually equipped. Future development, however, will bring about installation of central separators and tank batteries.

Water conditions

A few wells in the northern part of the field have encountered bottom-hole water at a depth of —1,950 ft. Water production is not yet a problem in the field, but as it grows older several wells in the north part will have to be plugged back.

Bottom-hole pressure

Original bottom-hole pressure was approximately 2,000 lb. per sq. in. At the first of 1938 the average was 1,936 lb.; at the first of 1939 it was 1,908 lb., and at the first of this year was in the neighborhood of 1,810 lb.

Gas-oil ratios

Earlier wells drilled in the field were completed with high gas-oil ratios. Reworking of these wells and development of the lower pay section has lowered the ratios of wells until now only two exceed 2,500 cu. ft. of gas per barrel of oil, maximum ratio provided in the field rules. Allowable of the two wells exceeding the ratio is regulated by a gas-displacement factor. Railroad Commission orders require that gas-oil ratios be taken quarterly.

GENERAL DATA

Field rules

Until February 1 the field was developed under state-wide rules only, but on that date special field rules were issued. These provide that wells be drilled 660 ft. from lease lines and 1,320 ft. apart, or one well in the center of 40 acres, which is the spacing used prior to promulgation of field rules. One exception to this is the one well on the very narrow 41-acre tract. Distribution of allowable is on the basis of 75 per cent to acreage and 25 per cent to potential. A 10-acre tolerance is allowed for the last well drilled on a tract. When the commission held the field hearing early in January of this year, operators proposed that every operator should make a bona fide effort to pool small tracts with adjoining acreage before asking for an exception. This requirement was not included in the field rules however.

Accumulated production

Year	Annual production	Accumulated production
1937	28,055	28,055
1938	125,442	153,497
1939	178,855	332,352

Pipe-line outlet

In the past all crude was trucked from the field to Humble Pipe Line Co.'s station in the Bennett area of the Wasson field, or to the company's Means station. Magnolia Pipe Line Co. is now laying a 26-mile, 8-in. line from the south side of the field southwest to a point where it will connect to Atlantic Pipe Line Co.'s 8-in. main line to Port Arthur. Atlantic will gather crude in the north portion of the field and deliver it to the north end of the Magnolia's system, which will take crude in the south portion. A booster station of 5,000 bbl. daily capacity is to be built in the field. The carrier is expected to be in complete operation by May 1.

Crude-oil analysis

Seminole crude is a typical sour West Texas crude averaging 34 to 35° A.P.I. gravity, and of relatively high straightrun gasoline content. An analysis of a typical sample follows:

DATA ON CRUDE

Gravity, degrees A.P.I.	33.7
Sulfur, per cent	1.73
Viscosity at 100° F., S.S.U.	43
Color (Lovibond)	4,000
Cast	dark green

DATA ON PRODUCTS

	Naphtha (375 V.T.)	Kerosene (past 375 V.T.)	Light gas oil
Yield, per cent	31.6	12.7	17.2
Gravity, degrees A.P.I.	59.6	41.0	31.8
Sulfur, per cent	.22	.70	1.64
Octane number (L-3 method)	56.1	...	...
Ring number	...	25	...
Diesel index	...	...	48

	Heavy gas oil	Bottoms	Narrow lube cut*
Yield, per cent	23.0	14.9	
Gravity, degrees A.P.I.	22.9	7.5	19.3
Pour point, degrees F.	95		110
Flash (O.C.), degrees F.		625	...
Sulfur, per cent	...	4.0	...

*Range of narrow lube cut, from 75.8 to 85.1 per cent.

PROGRAMS AND MEETINGS

District Meetings of A.P.I. Announce Programs

Southwestern District, Houston

The preliminary program for the spring meeting of the southwestern district, Division of Production, American Petroleum Institute, at Rice Hotel, Houston, Tex., March 28-29, follows:

Thursday, March 28

8:00 a.m.—Breakfast meeting for officers of southwestern district, presiding officers, and authors.

9:30 a.m.—Presiding: L. A. Ogden, Pure Oil Co., Fort Worth, Tex., and M. G. Cheney, Anzac Oil Corp., Coleman, Tex.

Address of welcome. Response by E. P. Hubbard (chairman of the southwestern district).

Chapter activities: Report from the various southwestern district chapters.

"Gravel Packing Oil Wells in the Gulf Coast Fields," M. L. Cashion and F. B. Markle, Gulf Oil Corp., Houston.

"Paraffin Removal From Tubing in Flowing Wells," J. Daviss Collett, Jr., consulting petroleum engineer, Houston.

2:00 p.m.—General session. Presiding: E. P. Hubbard, Gulf Oil Corp., Houston.

Address by W. B. Pyron, vice president, Gulf Oil Corp., Houston.

"The Development of Our Changing Concepts of the Fundamentals of Oil Production," E. De Golyer, professor of geology, University of Texas.

"Supervisory Training in the Oil Industry," H. H. Anderson, vice president, Shell Oil Co., Inc., St. Louis, Mo.

Announcements.

5:00 to 7:00 p.m.—Informal entertainment, Houston Club. Ladies invited. Courtesy of the Houston Oil Fraternity.

Friday, March 29

8:00 a.m.—Breakfast meeting for officers, presiding officers, and authors.

9:30 a.m.—Morning session. Presiding: R. O. Garrett, Arkansas Fuel Oil Co., Shreveport, La., and S. E. Buckley, Humble Oil & Refining Co., Houston.

"Artificial Lift Methods in the Rodessa Field," B. J. Dowd, Union Producing Co., Vivian, La.

"Oil Development and Production Practices on the Gulf Coast," G. B. Coriess, Humble Oil & Refining Co., Houston.

"Causes, Prevention, and Recovery of Stuck Drill Pipe," J. E. Warren, Carl B. King Drilling Co., Dallas, Tex.

Election of district officers and advisory committee.

2:00 p.m.—Presiding: Harold Vance, Department of Petroleum Engineering, A. & M. College of Texas, College Station, Tex., and J. P. Straight, Cities Service Oil Co., Gladewater, Tex.

"Limitations of Electrical Logging," J. Zaba, Rio Bravo Oil Co., Houston.

"A Comparison Between Electrical Well Logging and Core Analysis," P. B. Leavenworth, Gulf Oil Corp., Houston.

"Gun Perforation and Acidization in Open Formation of the Limestone Pays in the Permian Basin," J. A. Jones, Lane-Wells Co., Odessa, Tex.

The district officers (1939-40) are: E. P. Hubbard, chairman, Gulf Oil Corp., Houston; R. L. Carruthers, vice chairman for Gulf Coast, Sun Oil Co., Beaumont; Harold Decker, vice chairman for Southwest Texas, Seaboard Oil Co., Corpus Christi; L. A. Ogden, vice chairman for North and West Texas, Pure Oil Co., Fort Worth; T. W. Johnson, vice chairman for Arkansas and North Louisiana, Union Producing Co., Shreveport; C. G. Staley, vice chairman for New Mexico, Lea County Operators' Committee, Hobbs; J. P. Straight, vice chairman for East Texas, Cities Service Oil Co., Gladewater; J. U. Teague, secretary-treasurer, Hogg Oil Co., Houston; W. S. Morris, chairman, advisory committee, East Texas Engineering Association, Kilgore.

Program committee: L. A. Ogden, chairman, Pure Oil Co., Fort Worth; S. E. Buckley, Humble Oil & Refining Co., Houston; M. G. Cheney, Anzac Oil Corp., Coleman; R. O. Garrett, Arkansas Fuel Oil Co., Shreveport, La.; F. E. Heath, Sun Oil Co., Dallas; J. P. Straight, Cities Service Oil Co., Gladewater; Harold Vance, A. & M. College of Texas, College Station.

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Eastern District, Columbus

The program of the American Petroleum Institute, eastern district, Division of Production meeting to be held in Columbus, Ohio, April 11-12 in the Deshler-Wallick Hotel, follows:

Thursday, April 11

10 a.m.—Presiding: D. T. Ring, Preston Oil Co., Columbus, Ohio.

Address of Welcome by Gov. John W. Bricker of Ohio.

Conservation and Proration Without Allowables, by Roger C. Hutchings, American Petroleum Institute.

Water Treatment for Prevention of Scale and Corrosion in Connection with Water Flooding and Waste-Brine Disposal, by F. T. Redman and R. F. Mackie, Hall Laboratories, Pittsburgh, Pa.

2 p.m.—Presiding: J. J. Schmidt, East Ohio Gas Co., Cleveland, Ohio.

Lubrication of Oil-Field Equipment, by H. R. Foster, Lubri-Zol Corp., Cleveland, Ohio.

Review of New Developments, Procedures and Methods in Drilling and Completing Wells, by E. A. Shakley, exploitation engineer, Shell Oil Co., Inc., Centralia, Ill.

Appraisal of Oil Properties, by Ralph E. Davis, Ralph E. Davis, Inc., Pittsburgh, Pa.

Portable Compressors, by J. A. Thompson, Belmont Quadrangle Drilling Corp., Bradford, Pa.

7 p.m.—Annual dinner and entertainment, Deshler-Wallack Hotel. W. E. Ferguson, Ohio Fuel Gas Co., chairman of entertainment committee.

Friday, April 12

10 a.m.—Presiding: M. G. Gulley, Gulf Oil Corp., Pittsburgh, Pa.

Problems in Deep Cable-Tool Drilling—Appalachian District, by J. A. Fox, Foley & Fox, Washington, Pa.

Crude Oil and Its Competitive Fuels, by Dr. Gustav Egloff, director of research, Universal Oil Products Co., Chicago.

Electrical Logging, by J. D. Gustafson, Carter Oil Co., Dix, Ill.

Interesting Developments in Michigan, by George Myers, Sun Oil Co., Toledo, Ohio.

2 p.m.—Presiding: W. A. Watkins, Carter Oil Co., Mattoon, Ill.

Business meeting. Election of officers.

Multisand Completions, by Bart DeLaat, Pure Oil Co., Olney, Ill.

Geology and Development of the Illinois Basin Area, by Dr. A. H. Bell, geologist and head of Oil and Gas Division, Illinois State Geological Survey, Urbana, Ill.

Use of A.P.I. Tubular Goods—Appalachian District, by J. B. Graham, National Tube Co., Pittsburgh, Pa.

The program committee is J. J. Schmidt, chairman; W. A. Watkins, and M. G. Gulley.

Calendar of events, Page 30, March 7 issue, will be resumed in next week's issue

Pacific Coast District, Los Angeles

At the evening session of the spring meeting of the American Petroleum Institute, Pacific Coast district, Division of Production, in the Biltmore Hotel, Los Angeles, March 19, Gov. Leon C. Phillips of Oklahoma will discuss the "Trend of Public Interest in the Petroleum Industry." The program committee instead of selecting a large number of papers has chosen six topics to be covered and will throw open the meeting for unlimited discussion. Governor Phillips' address will be broadcast from 9:15 to 9:45 p.m. over the N.B.C. blue network which will include 26 stations west of Albuquerque as well as 2 Texas stations.

The program follows:

Morning session:

Practical Utilization of Rate-of-Penetration Drilling Data, C. A. Yeatman, Shell Oil Co., Inc., Los Angeles.

Oil and Cementing Factors Influencing Bond Between Cement and Formation, P. H. Jones and Denis Berdine, Union Oil Co. of California, Wilmington.

Applications of Chemicals in the Petroleum Industry, W. W. Robinson, Jr., Texas Co., Long Beach.

Afternoon session:

Pioneering of Rotary Methods of Drilling in California, L. B. Little, Standard Oil Co. of California, Los Angeles.

Trends in Allowables in California, L. L. Aubert, Bankline Oil Co., Los Angeles.

Bottom-Hole Control of Gas Production, E. W. McAllister, Kettleman North Dome Association, Avenal, Calif.

Program committee: Paul E. Lehr, chairman, Shell Oil Co., Inc.; T. A. Atkinson, General Petroleum Corp. of California; E. J. Bartosh, Bankline Oil Co.; V. J. Beissinger, Richfield Oil Corp.; D. L. Caldwell, Barnsdall Oil Co.; W. H. Ferrand, Texas Co.; R. W. French, Continental Oil Co.; Norris Johnston, General Petroleum Corp.; C. B. Kimberlin, Kettleman North Dome Association; R. N. McMaster, Chanslor-Canfield Midway Oil Co.; F. A. Morgan, Richfield Oil Corp.; J. D. Robinson, Union Oil Co.

Arrangements committee: R. E. Allen, chairman, California Oil and Gas Association; J. R. Pemberton, vice chairman, California oil umpire; Myron Albertson, Kobe, Inc.; W. L. Heater, Baroid Sales Department; H. C. Hill, General Electric Co.; W. F. Huff, Petroleum Equipment Co.; R. P. McKey, Petroleum World; R. N. McMaster, Chanslor-Canfield Midway Oil Co.; O. W. Morgan, Byron Jackson Co.; E. M. Rees, Fluid Pack Pump Co.; L. P. Stockman, Independent Oil Producers Agency.

Howard C. Pyle, Union Oil Co., is chairman of the Pacific Coast district; R. N. McMaster, Chanslor-Canfield Midway Oil Co., is vice chairman for Los Angeles Basin; H. C. Stone, Texas Co., is vice chairman for the coastal area, and A. C. Terman, Standard Oil Co., is vice chairman for the San Joaquin Valley. W. G. Corey is treasurer, and D. S. Kilgour secretary.

Fluid Meter Conference

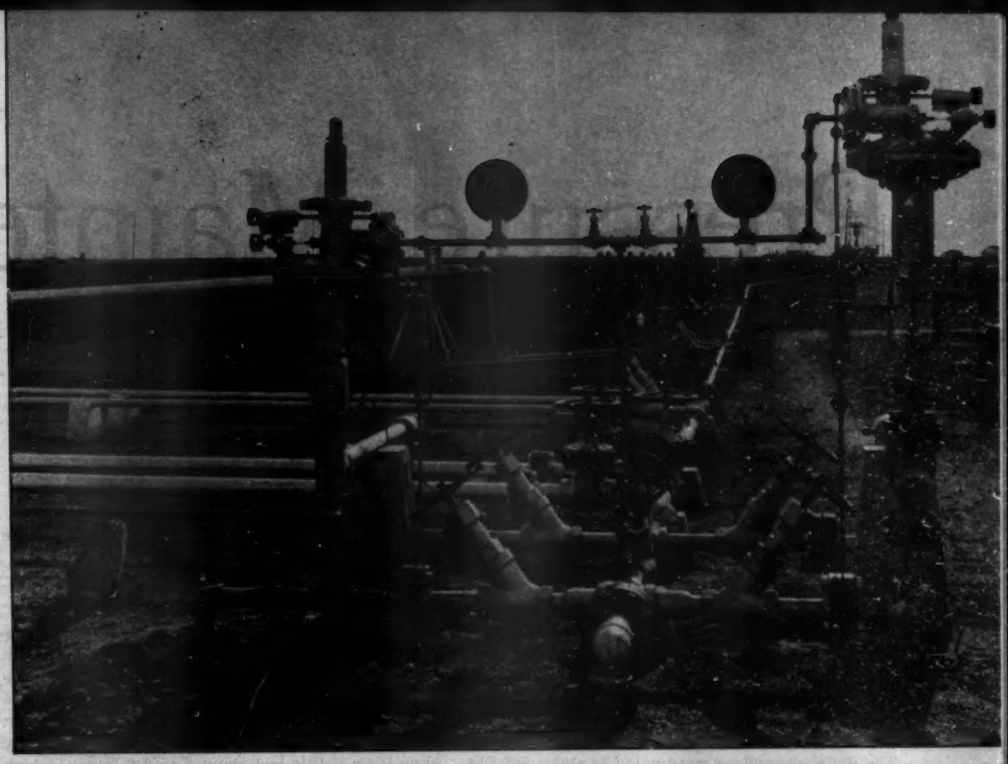
The Petroleum Fluid Metering Conference will be held at the University of Oklahoma in Norman, Okla., on April 11 and 12. This conference and the research work being done on fluid metering are sponsored by the Petroleum Division of the American Society of Mechanical Engineers and the college of engineering at the University of Oklahoma. The Petroleum Division is also holding a national meeting in Norman, on April 12 and 13.

International Acetylene Association

Latest practices and developments in applications of the oxyacetylene process will be under consideration at the annual convention of the International Acetylene Association April 10-12 in Milwaukee, at the Hotel Schroeder.

Midwest Power Conference

R. L. Meyer, superintendent of utilities, Whiting refinery, Standard Oil Co. (Indiana), will present a paper on "Power for the Refinery" before the Midwest Power Conference sponsored by the Armour Institute of Technology in cooperation with several colleges and the Chicago sections of the American Institute of Electrical Engineers and the American Society of Mechanical Engineers.



Regulators on lines used in connection with the operation of condensate production on a property of Pan American Production Co. in Dickinson, Tex., area. At rear end of the manifold is equipment for taking samples in cylinders under high pressure which are used by engineers in studying conditions affecting production

ENGINEERING & OPERATING

MARCH 14, 1940

In This Section

PRESSURE MAINTENANCE IN CUNNINGHAM-LANSING LIME POOL, KANSAS
By Colin C. Rae ..... Page 42
Conditions affecting repressuring operations conducted in connection with producing oil from a lime formation are discussed to show what is being accomplished by a major company.

IMPROVED PUMPING OPERATIONS IN CENTRAL-POWER UNITS
By George Weber ..... Page 45
In the course of operating a property, the design and balancing of central-power equipment requires the application of engineering principles.

TREATMENT AND DISPOSAL OF OIL-FIELD BRINES
By Joe J. Rady ..... Page 48
Methods used for dealing with the disposal of salt water produced with oil are reviewed.

GASOLINE-RECOVERY DEVICES TESTED ON STRIPPER LEASE
By Paul Reed ..... Page 53

SAFETY—Wheels and Wrenches for Valves ..... Page 43

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Pressure Maintenance—

Cunningham-Lansing Lime Pool, Kansas

By COLIN C. RAE
Skelly Oil Co.

THE Cunningham-Lansing lime oil pool is situated in Township 27s, Ranges 10w and 11w, Kingman and Pratt counties, Kansas. The field was located in 1929 by core drilling done by the Skelly Oil Co., using the Cimarron anhydrite at 350 to 450 ft. as a marker. The discovery well, Skelly's No. 1 Miles A, was completed in January 1932 for 253 bbl. of oil daily. All completed oil wells are owned by the Skelly Oil Co. Forty-four wells have been completed. The average natural daily oil production was 100 bbl. Acid treatment made large increases in productive capacities. The producing area covers approximately 1,400 acres. The daily allowed oil production is about 868 bbl. The past oil production has been about 2,000,000 bbl.

Geology

The Cunningham oil field is located upon a well-developed dome with a closure of over 320 ft. on the Ordovician. The oil production is found in the upper part of the Lansing-Kansas City lime formation of Pennsylvanian age at 3,400 to 3,500 ft. The formation is a gray limestone with varying crystallinity. Porous reservoirs for the oil are developed in very thin oolitic, coquina or cherty horizons. The amount of producing closure on the Lansing lime is 80 ft. Water is found in the pay strata lower on structure.

Producing Strata

The total pay thickness of the average Lansing-Kansas City lime well does not average over 8 ft. A few feet below the top of the Lansing formation, some wells find a few feet of a coquina zone carrying gas in the higher wells, and some oil in wells near the edge of the pool. The main pay zone is an oolitic bed about 3 to 4 ft. thick, which is found around 30 ft. below the top of the Lansing. Below the oolitic pay are about 30 ft. of lime carrying a few very thin streaks of porosity in cherty zones. Low and variable permeability may be the cause of erratic gas and oil production through this lower zone.

Tests on the pay streaks of average wells indicate that the range of porosity is from about 2 to 17 per cent, while permeability is from 100 to 300 millidarcys. The average porosity of pay strata is about 11 per cent, and average permeability is 105 millidarcys. The average gas-oil ratio of natural production was 2,000 cu. ft. per barrel.

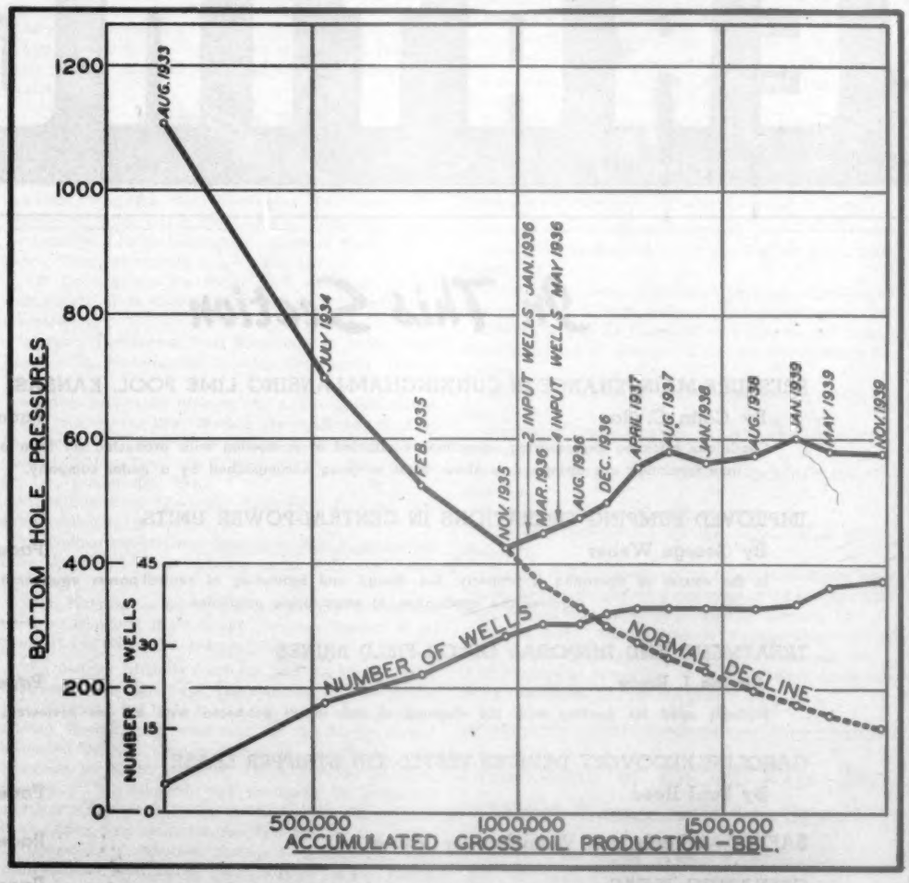


Chart showing relation of accumulated oil production against bottom-hole pressure decline

A. P. I.

Presented before Mid-Continent district meeting at Wichita, Kans., on March 14, 1940

COLIN C. RAE

The field is essentially a gas field in other producing formations. Available information indicates that, while the permeability is similar to many western Kansas Lansing lime pools, the total pay thickness and porosity are much below the average. Connate water is reported in some pools at 12 per cent. Considering the various factors, such as thickness of pay, porosity, permeability, free gas, connate water, etc., an estimate of normal recovery of 250 bbl. per acre-foot or 2,000 bbl. per acre would be reasonable for the Cunningham pool.

Some water is present in edge wells, particularly on the north side of the pool, but the volume is small and encroachment is very slow, so probably the field can be classified as a gas-drive pool, the oil production being chiefly under volumetric control.

Development

The production of crude oil and development of the field were limited by lack of pipe-line connection until 1934. Deeper drilling had then discovered lower gas zones with a slight possibility of oil. Although it has been very difficult in the State of Kansas for a gasoline plant to make any profit due to low gasoline content of gas, and short life of the gas volumes necessary to maintain profitable operations, it was decided to spend many hundreds of thousands of dollars upon a gasoline plant and attempt to recycle the gas usually blown into the air back into the producing formation. This plan would prolong the gas production and allow more efficient recovery of the oil reserves. After the completion of the gasoline plant, diligent efforts were made to adjust the oil production in order to avoid popping any gas.

Oil Production Prior to Pressure Maintenance

Prior to pressure maintenance being started in January 1936, 1,009,000 bbl. of oil had been produced. The average bottom-hole pressure had declined from over 1,100 lb. to 424 lb. with a comparable decline in productive capacity of the wells. This rapid decline indicated that the oil production from the 8 ft. of pay zone would not return a reasonable profit on total investment and operating cost in the pool.

Pressure Maintenance and Results in Oil Production

Pressure maintenance was started in January 1936. Four input wells are being used, receiving

a total daily volume of 3,500,000 cu. ft. Two input wells are located 10 ft. structurally below top of dome, while the other two wells are 30 ft. lower. Plans are being made for other input wells in the southwest portion of the pool. It is probable that pressure maintenance results at Cunningham may give some measurements of results under fairly low permeability. The few Kansas Lansing lime oil pools with permeability of 4,000 to 5,000 millidarcys may not give equivalent results.

Since pressure maintenance was started in January 1936, about 1,000,000 bbl. of oil have been produced giving a total past production for the pool of 2,000,000 bbl. of oil.

Bottom-hole pressures have been raised to, and maintained at approximately 575 lb. About 85 per cent of the produced gas by volume has been returned to the formation. This factor indicates that Cunningham pressure can be maintained by returning to the formation the available gas produced with the oil. It is probable that the slight water drive helps to maintain pressures.

Most of the past 2,000,000 bbl. of oil has been produced from flowing wells. Several wells have been placed on pump during past year, but about 25 per cent of the producing wells are still flowing naturally.

The average gas-oil ratio for the pool has slightly declined during the past 4 years of pressure maintenance, which promises many years of production under pressure maintenance before the costs of recycling gas will cause the project to be abandoned.

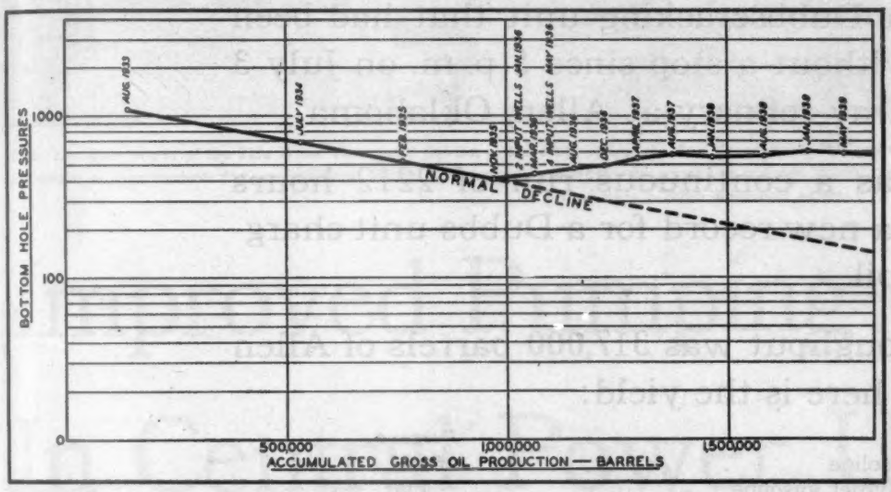
Ultimate Oil Recovery Under Pressure Maintenance

The estimation of ultimate oil production from an oil pool under repressuring and proration presents a problem. In a gas-drive pool, a study of bottom-hole pressure decline against accumulated oil production appears to give a fair indication of ultimate oil recovery, if due consideration is given to gas-oil ratios and the economic factors.

Bottom-hole pressures have been taken periodically at the Cunningham pool over the past 6 years, so the approach to determination of ultimate oil reserves was made through study of pressure decline against accumulated oil production.

The plotting of the various pressure factors against accumulated oil production for the same dates was done on Chart 1 on rectangular coordinate paper to show flattening of curve over the years of past and future production. On Chart 2, semilog paper was used to determine whether the pressure decline, plotted against the accumulated production, would assume a definite slope, which would indicate its value in this pool as a means of estimation of future oil reserves.

The semilog plotting on Chart 2 showed a straight line for the relationship of pool pressure decline to accumulated production over a period of 27 months, which indicates that this method should give a fair estimate of future reserves for the Cunningham pool. During this period, many new wells were being completed. Under the rate of decline prior to repressuring, the total ultimate oil production of the pool can be estimated at 2,800,000 bbl. of oil. Past production has been about 2,000,000 bbl. of oil, which would indicate that, without pressure maintenance, many Cunningham oil wells would now be unprofitable and ready for abandonment.



Curve showing relation of accumulated oil production against bottom-hole pressure decline

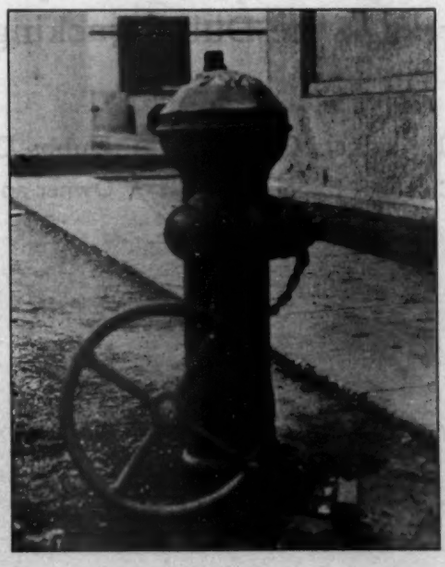
The determination of future oil reserves under pressure maintenance is more difficult. The slight decline in gas-oil ratios over the past 4 years of pressure maintenance promises many years of producing life, and probably the future gas-oil ratio increase can be kept to a minimum by regulating the percentages of produced gas to be returned to the formation. The slope of the future decline was determined by taking the older settled wells and comparing the pool decline during months of constant gas-oil ratio. The slope checked fairly well over various groups of wells, and indicated an ultimate oil recovery for the pool under pressure maintenance of 5,200,000 bbl.

Summary

Many Cunningham-Lansing lime oil wells would now be unprofitable and ready for abandonment without pressure maintenance. The past oil production has been about 2,000,000 bbl., of which 1,009,000 bbl. were produced prior to pressure maintenance. The normal ultimate oil production can be estimated at 2,800,000 bbl. without pressure maintenance. The total volume of gas input has been 84 per cent by volume of the gas produced. An ultimate oil recovery of 5,200,000 bbl. is promised under pressure maintenance. This result offers considerable encouragement for other pressure maintenance projects in the Lansing-Kansas City formations. Probably results will vary with permeability and regularity of the pay zones. It is usually very difficult to consolidate the ownership of oil leases under one operator, or obtain cooperation from all operators, which would be necessary to justify the erection of a gasoline plant or recycling plant, and begin pressure maintenance early in the life of the pools, when the larger gas volumes are available. However, the future will see more progress toward closer cooperation between the operators in Lansing-Kansas City lime pools in Kansas.

SAFETY - Wheels and Wrenches for Hydrants and Other Valves

IN order to hasten the coupling of the fire hose to the water outlet and to speed up the turning on of the water, one refiner has equipped all his plant hydrants with wheels and wrenches. In the picture a typical hydrant assembly is shown, the wrench resting on the ground while the valve wheel lays against the hydrant head. Each is chained to the hydrant but the chain does not interfere with its usefulness as each chain is long and is connected through a swivel link.



The practice of removing wheels and keeping them close to the valves has a broad application since it has been adopted to advantage in various branches of the oil industry where it is important to prevent valves being turned in an unauthorized manner. In the past much damage to equipment and injury to employes has resulted from improper turning of valves which frequently can be prevented by the removal and chaining of the wheel or wrench. A major pipe line follows a policy of removing wheels from all valves which the chief engineer at the station decides shall not be used. The valve wheel rests on the valve with the stem sticking through the spokes. General instructions are issued that such a valve shall not be turned for any reason until the chief engineer orders the wheel replaced on the stem. To insure correct operation of valves, this company has a metal tag on each valve with a number on it which is recorded in the central office. A sign at each valve shows the number of turns required to close it.

A new Dubbs record

Daylight on October 4, 1939, saw the shutdown of a Dubbscracking unit that had been running without a stop since 5 p. m. on July 3 in the Sunray refinery at Allen, Oklahoma

That was a continuous run of 2212 hours and it set a new record for a Dubbs unit charging crude oil

The throughput was 317,000 barrels of Allen crude and here is the yield:

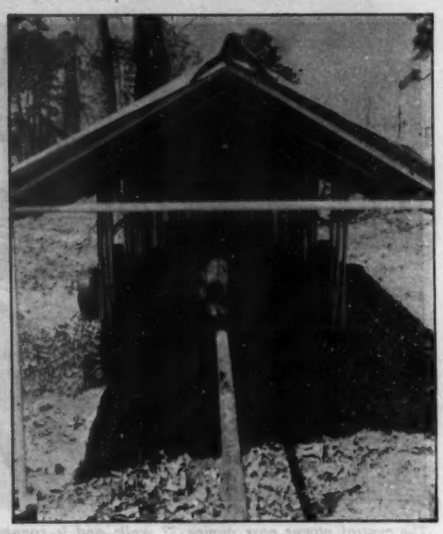
	Percent
Gasoline	61.27
Polymer gasoline	1.90
Side cut (furnace oil)	2.05
Residuum	27.12
Gas and loss	7.66
Octane rating of gasoline (L 3 Method)	71.2
Octane rating of polymer gasoline (L 3 Method)	84

The unit was back on stream in jig time and is still running

Congratulations to the Sunray management and the crew of the Dubbscracking unit

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor



Left: The Hale power of the Tide Water Associated Oil Co. in the south end of the East Texas field. This power was the subject of an exhaustive study in balancing units by means of dynamometer tests on rod lines. Right: The dummy counterbalances consist of concrete blocks suspended in pits. The rod line is connected to a wide length of belting over a large horizontal pulley

Improved Pumping Operations In Central Power Units

By GEORGE WEBER

THE design and balancing of central power pumping units require application of many engineering principles. In addition to the original work of installation, their continued operation under changing field conditions calls for periodic checks to minimize equipment wear and economize on power.

In East Texas the problem of keeping central powers in good operating condition is particularly important. Declining pressures and in some cases, salt water encroachment, vary individual well loads and necessitate addition of wells which were flowing when the power was first installed. In many instances, powers which were originally designed to care for wells on a lease developed on a 10-acre spacing pattern, are overloaded when added wells are drilled and placed on artificial lift. Practical pumping experience coupled with the use of new testing methods will in most cases bring good returns to the operator who makes periodic checks of his central power and applies corrective measures accordingly.

An outstanding example of this type of work is the survey made by the Tide Water Associated Oil Co. on its Hale power, located in the south end of the East Texas field. The power was overloaded and out of balance. It was necessary to improve its operation to care for additional wells due to go on the pump, and to reduce power loss and equipment wear. Although the Hale power represents only one of several such company installations in the field, it was judged representative enough to warrant a thorough study. This survey, and the methods employed have since served as a guide in subsequent corrective measures on other powers in the field.

Company engineers and field men, together with representatives of the Oil Well Supply Co.

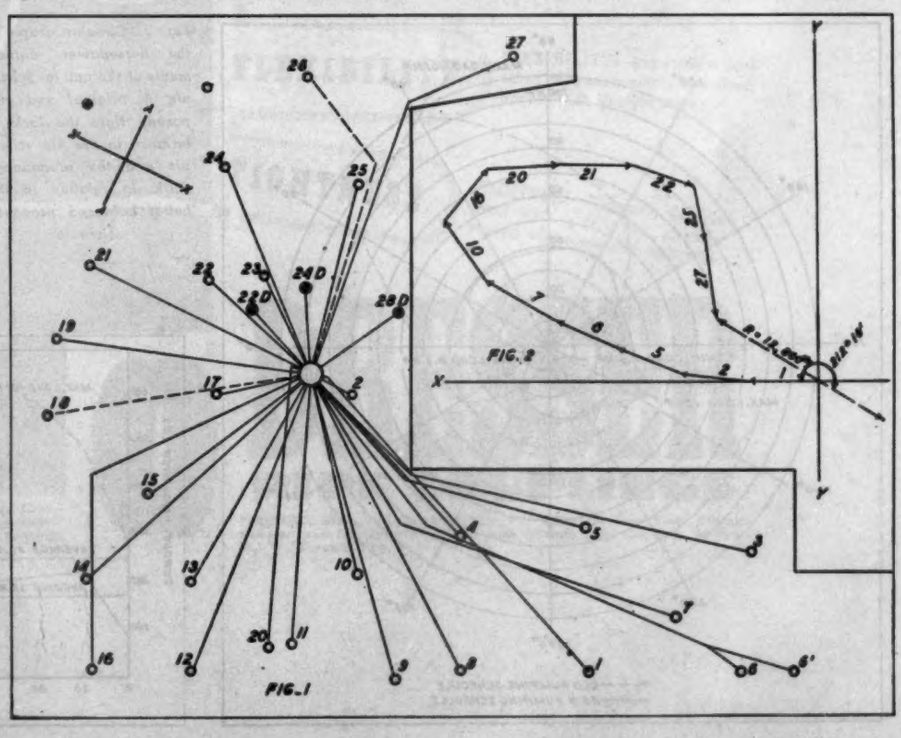


Fig. 1—Plan of the central power showing wells and rod lines. The solid circles marked D represent the dummy counterbalances. Right-of-way for rod lines across the lease to the right of the central power was denied the company, adding to the problem of balancing the unit. Fig. 2 (inset)—Vector diagram representing the magnitude and direction of the average load of each well in the old Schedule A. The resultant "R" which closes the diagram represents the magnitude and direction of the counterbalance needed to balance the central power when operating on that schedule. The axes insert in Fig. 1 orient it to the vector diagram

The central power now pumps 27 wells and is connected in addition to three dummy counterbalances. Peak and average horsepower were reduced considerably by rearranging pumping schedules and installing counterbalances

and National Supply Co. made the survey, which began early in 1938. Dynamometers were used in weighing each well at a point on the rod line immediately adjacent to the power.

From the data on the individual dynamometer cards, the amount of force and its direction was computed on the basis of current pumping schedules. From that point, proposed pumping schedules which gave better balance were assumed by trial and error, and the proper counterbalances were determined.

As a result, as shown by two representative schedules, the maximum horsepower requirement of the unit was cut from 107 in the old schedule to 43 in the new one. Excessive wear of the gears on the heavy side of the power was halted, and the oil leak in the power due to loosening of the trunion flange was stopped. It should be noted that the corrections comprised only revising the pumping schedules and installing three counterbalances, and no rod line rearrangement was necessary. The suggested schedules, first assumed by trial and error and later checked, were used in operation until addition of more wells and other changes necessitated revision.

Calculations

A plan of the central power, as shown in Fig. 1, was drafted as a basis for working drawings for schedules and counterbalances. The angles between the rod lines were turned with a transit, and the wells were numbered in a clockwise direction in the order of their rod-line position at the power. The dynamometer cards for each rod line were planimetered and the individual counterbalance force for each line was computed. This was done by dividing the sum of the areas under the upstroke and downstroke curves by twice the length of the card and multiplying by the calibrated deflection for the dynamometer. See Table 1.

To determine the magnitude and direction of the force needed to balance the entire central power, the average force needed to counterbalance each individual rod line was plotted in a vector diagram, using the magnitude to scale and the direction of the rod line. The resulting vector diagram, illustrated in Fig. 2, for the current Schedule A on the unit, the component required to close the diagram, in this case, 12,800 lb. at 212° 10′, represents the resultant force needed to balance the power.

TABLE 1—DATA FROM INDIVIDUAL ROD-LINE DYNAMOMETER CARDS

Well	Length of rod line	At Power: Max. load	Min. load	Stress range	Horsepower	Average counterbalance force
1	1,725	11,840	2,760	9,080	5.70	7,650
2	150	10,080	4,110	5,970	3.20	7,350
3	2,025	11,515	1,974	9,541	6.67	6,750
4	900	9,870	4,277	4,593	2.76	7,090
5	1,350	11,515	3,619	7,896	5.03	7,450
6	2,412	11,054	3,224	7,830	4.01	6,750
7	7,818	13,818	5,593	8,225	6.03	8,380
8	1,450	11,712	4,738	6,974	5.10	8,140
9	1,325	11,186	2,764	8,422	6.08	6,820
10	850	9,870	5,140	4,730	2.67	7,750
11	1,115	10,280	5,140	5,140	2.46	7,600
12	1,275	12,502	4,606	7,896	5.52	8,255
13	990	10,530	3,940	6,590	3.42	7,000
14	1,350	11,515	2,961	8,554	6.18	7,030
15	800	11,515	5,593	5,922	3.66	8,170
16	1,825	10,900	3,690	7,210	4.51	7,060
17	350	10,528	3,290	7,238	3.95	6,750
20	1,226	11,440	4,600	6,840	4.55	7,850
22	500	8,560	5,000	3,560	1.17	6,500
25	750	9,870	3,701	6,169	2.76	6,710
27	1,725	11,844	3,158	8,686	6.28	7,470
	Total horsepower				96.93	
	Average horsepower				4.41	

Horsepower and Torque Curves

In addition to determining the counterbalancing forces needed, the engineers went further into detail in computing horsepower and torque at 30° intervals throughout the rotation of the crank for the current and proposed Schedules A. This was done by using the instantaneous load at each crank position, from all dynamometer cards, instead of taking the average force, as employed in finding the resultant counterbalancing force for

(Continued on Page 54)

TABLE 2—TORQUE AND HORSEPOWER CALCULATIONS FOR EACH 30° CRANK POSITION. PROPOSED SCHEDULE "A"

Crank position (deg.)	Resultant force (R)	Torque producing component of the resultant pounds (R_t)	Torque in.-lb. ($R_t \times$ radius)	Horsepower $\frac{2\pi T \times}{R_t \times S.p.m.}$ $12 \times 33{,}000$
0	11,000	4,200	88,200	15.88
30	14,100	10,750	225,750	40.64
60	13,200	10,450	219,450	39.50
90	11,050	9,950	208,950	38.13
120	11,500	11,400	239,400	*43.09
150	9,100	9,050	190,050	34.21
180	10,300	9,400	197,400	35.53
210	11,600	11,100	233,100	41.96
240	7,900	7,800	163,800	29.48
270	7,600	7,500	157,500	28.35
300	6,400	6,250	131,250	23.63
360	5,000	2,500	52,500	†9.45
	Average		175,600	32.00

*Maximum. †Minimum.

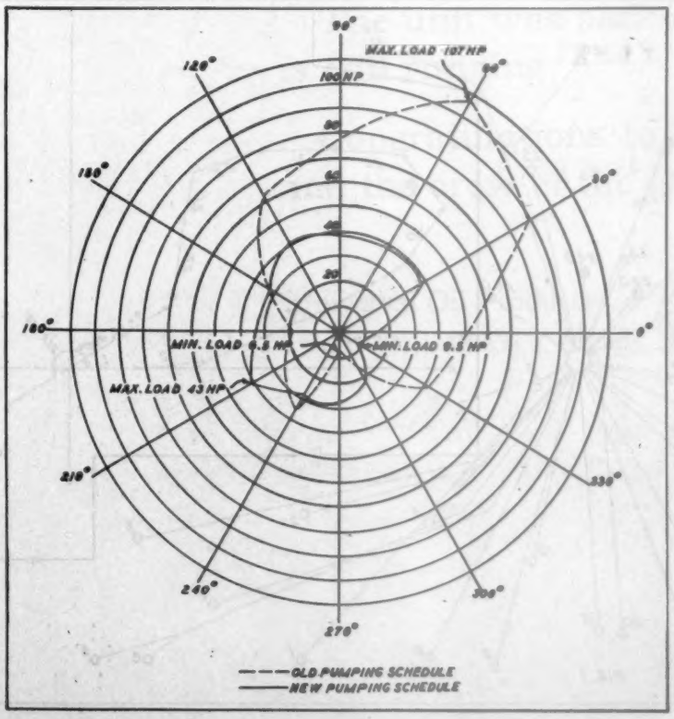


Fig. 3—Circular graph of the horsepower requirements of the unit for Schedule A, original and proposed. Note the lack of balance in the old schedule and the pronounced peak, in relation to the better balanced proposed schedule

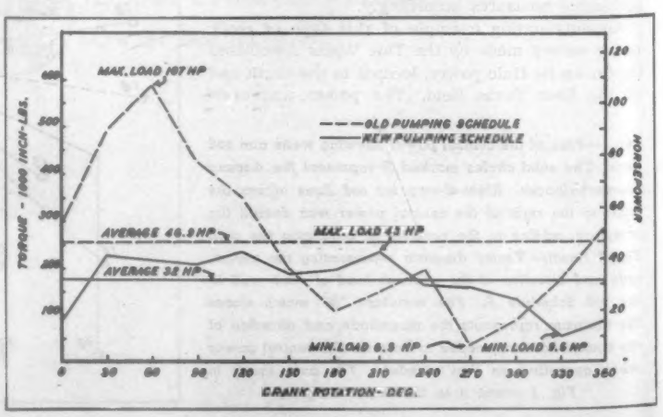


Fig. 4—Torque in inch-pounds, plotted against crank rotation, showing the reduction in maximum and average horsepower to pump on Schedule A as revised

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Treatment and Field Brines

By JOE J. RADY
Consulting Engineer, Fort Worth, Tex.*

THE recent court action brought by the State of Texas against 55 oil companies charging water pollution from waste salt water has focused public attention upon the problem of oil-field brine disposal. Other states, notably Oklahoma and Kansas, have struggled with this problem for many years. Texas is now facing it in concrete form and must find the solution to its own particular problem. To do so the scientific approach is recommended, requiring a study of the fundamental principles involved, careful examination of all previous work done on the subject, and finally the correlation and application of all these data to the solution of the specific problem at hand. This procedure may be slow and tedious, but it has solved our greatest industrial problems, and for that matter has made possible the development of the vast oil industry itself.

In drilling a well for oil, many subsurface formations of sandstone and limestone are penetrated. Some of these formations are saturated with highly mineralized waters, commonly referred to as salt water or brine. The released brine will seek an area of reduced pressure, which will be either the oil well itself or another porous formation. Proper drilling methods, careful bottom-hole plugging, and the cementing of the annular space between the outside casing and the drill hole will reduce the intrusion of brine into fresh-water strata and into the oil well. The U. S. Bureau of Mines records show that in the Cushing, Okla., field, in the case of 22 producing wells, the ratio of brine to oil was reduced from 15 to 1 to approximately 1½ to 1 by repairing defective wells. In the Powell field in Navarro County, Texas, repairs were made on a number of wells and the ratio of brine to oil production was reduced from 25 to 1 to less than ½ to 1.

However, under certain geological and pressure conditions, brine can not be excluded from the oil well in spite of all precautions that might be taken. Bottom water will eventually rise in most fields under hydrostatic head as the oil is pumped out, and finally will reach the oil well as the center of the reduced pressure in the oil formation. The quantity of brine produced will, usually, increase with the life of the field. But there are so many variables involved that it is difficult to estimate with any degree of certainty the amount of brine that will be produced after a given period of time. Surveys made by the U. S. Bureau of Mines in cooperation with the Kansas Health Department showed that in the Arkansas River basin in Kansas the ratio of brine to oil produced increased in 1 year from 0.6 to 0.9. Other Kansas fields investigated by these authorities showed substantially larger annual increases in the proportion of brine to oil produced. All available data on Texas oil fields follow the same trend.

Pits being dug to hold oil-field brines

Oil-field brines often contain more dissolved salts than are found in sea water. As a general rule, the chlorides of sodium, magnesium, and calcium predominate. Sulfate and bicarbonate combinations are sometimes found. Some brines contain small quantities of rarer salts, and attempts are being made to recover these as a part of the brine-treating and disposal process. Hydrogen sulfide and carbon dioxide gases are also present in solution, singly or together, adding in no small degree to the disposal problem. The importance of these gases is indicated by the recommendation of the Bureau of Mines that oil-field brines be classified as (1) brines produced from limestone formations containing relatively high concentrations of hydrogen sulfide and carbon dioxide; (2) brines produced from sandstone formations that contain carbon dioxide but no hydrogen sulfide, and (3) brines produced from limestone formations that contain carbon dioxide but no hydrogen sulfide.

The highly mineralized nature and wide variations in chemical contents of oil-field brines are best illustrated by the following table showing the composition limits in representative brines in the Kansas, Oklahoma, and Texas oil fields:

Radicals—	Parts per million
Calcium	600 to 13,000
Magnesium	230 to 4,000
Sodium and potassium	5,000 to 76,000
Bicarbonates	20 to 650
Sulfate	trace to 2,500
Chloride	10,000 to 150,000
Total solids	15,000 to 250,000

When we compare the above concentrations with the accepted minimum standards for potable water we can readily see the magnitude of the oil-field brine problem. Vegetation cannot survive when such brines are allowed to flow for considerable time over the ground surface. C. S. Scofield, of the U. S. Department of Agriculture, states: "It is the consensus among investigators that the roots of ordinary crop plants cannot tolerate concentrations of mixed salts in solution much above 1.5 per cent."

Brine-disposal plant operating with aeration and sludge stabilization

*Paper delivered at the Waterworks and Sanitation Short School held at Texas A. & M. College, February 1940.

Disposal of Oil

The effect of brine on fish life is dependent on the concentration of the brine and the species of the fish. The U. S. Bureau of Fisheries is authority for the statement that such typically freshwater fish as black bass, brook trout, and carp may live and thrive in brackish or even in salt water under natural conditions where the fish are free to choose their environments. Investigations by this bureau show that other factors must also be considered in this connection, such as the amount of dissolved oxygen and the hydrogen ion concentration of the water. It has also been shown by numerous investigations that sudden large changes in salt concentration will have fatal effects on fish life. Thus, bass and perch died when transferred from fresh water directly into sea water containing 35,000 p.p.m. of sodium chloride but the same species survived sodium chloride concentrations of 14,000 p.p.m.

The most vital consideration is, of course, the effect of oil-field brine on public and private water supplies. To the state and to the individual there is no more precious natural resource than water. The agricultural and industrial growth of the state, the personal welfare and the very life of the individual are dependent upon potable water. The detrimental effect of too high a concentration of salt water in streams and underground water supplies from which water for household and industrial use is obtained is too well known to need elaboration. There is, of course, a certain permissible amount of brine concentration that will cause no harm to anyone. The U. S. Bureau of Public Health, which is the official watchdog over the purity of our public water supplies, has designated certain limiting standards for satisfactory drinking water. Chlorides are limited to 250 p.p.m., magnesium to 100 p.p.m., and total solids to 1,000 p.p.m.

Examination of the table showing the chemical-composition limits of representative oil-field brines will readily show the pollutional effect of such brines. Chlorides may be 40 to 600 times the allowable. The total solids may be 15 to 250 times the allowable. Under these circumstances, it is evident that large quantities of water, low in chlorides and total solids, would be required for dilution of the brines down to the accepted drinking-water standards.

In the Mid-Continent oil fields, and especially in Texas, nature does not always provide a steady supply of large quantities of good water which would be essential for proper dilution of the salt water produced. It is therefore a major problem of the oil industry to dispose properly of the brines produced with the oil under the conditions existing. Three general methods are now being tried. The first method consists of impounding the brine in evaporation ponds. The system is used because of low initial construction cost and because it is cheap to operate. However, experience has shown and tests by the U. S. Bureau of Mines have confirmed that net evaporation after correction for rainfall addition is too slow to be effective. Seepage from the reservoirs is a continuous source of trouble. In most cases this method is being discouraged. If used at all, the reservoir should be adequately protected against seepage, should cover as much area, and be as shallow as possible.

Diversion Into Surface Streams

The second method is diversion into surface streams. This procedure requires such heavy initial investment that it is best carried out as a cooperative enterprise. Since its operation depends upon the dilution effect of the flowing stream, there must always be maintained a fixed relationship between the quantity of brine and the stream flow, with proper consideration of the chemical concentration of the brine. In Texas, as in most Mid-Continent fields, this requires adequate storage facilities during periods of low and normal stream flow. Regulated discharge during periods of high stream flow will prevent undue pollution. Where adequate storage has not been provided or where the brine discharge has not been carefully controlled, this method has not been satisfactory.

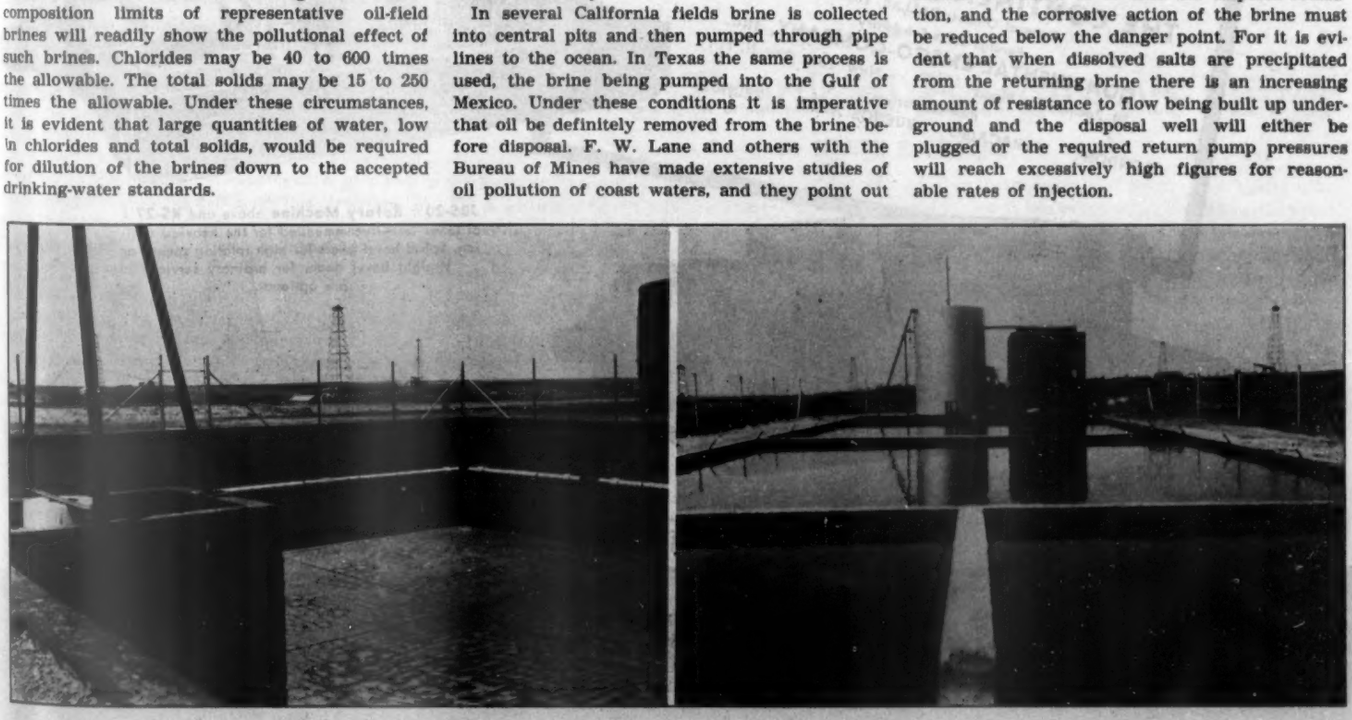
In several California fields brine is collected into central pits and then pumped through pipe lines to the ocean. In Texas the same process is used, the brine being pumped into the Gulf of Mexico. Under these conditions it is imperative that oil be definitely removed from the brine before disposal. F. W. Lane and others with the Bureau of Mines have made extensive studies of oil pollution of coast waters, and they point out the dangers from pollution if oil is carried along with the brine.

The third process for disposal involves the return of the oil-field brine to subsurface formations. This method is the one most recently developed, but is gaining favor with the oil industry as well as with the public authorities.

In principle this process is based on the assumption that when oil and salt water are removed from a formation, gas or water move in to fill the vacancy, under hydrostatic pressure. Therefore, in theory, all the salt water previously removed may later be returned into the formation without disturbing the hydrostatic equilibrium. Careful study of the movements of the subterranean waters in each particular case is necessary to determine the proper location of the well through which the brine is to be returned. Neglecting to consider this will lead to failure in the disposal process and possible damage to producing wells in the vicinity. The chemical composition of the brine it is proposed to return is of the utmost importance in this process. Without going into the complex chemistry and the ionic theory involved, it should be noted that oil-field brines are highly complex solutions containing a score of ionic components and a number of unknown ionic systems. All these components are in balance in the original underground location of the brine. However, this balance is destroyed when the brine reaches the surface. The equilibrium of the salts in solution is altered, due to changes in temperature and pressure and the resultant liberation of some of the gases. Chemical reactions between the brine and iron piping and equipment cause further change in the brine makeup, and we are thereafter dealing with more or less unbalanced and at times highly active solutions, which together make up the oil-field brines.

Must Condition Brine

To assure satisfactory operating results in the subsurface injection process, it is necessary to condition the brine before returning it underground. Such conditioning must restore the brine to sufficient equilibrium so that no suspended matter is carried to or into the disposal formation, and the corrosive action of the brine must be reduced below the danger point. For it is evident that when dissolved salts are precipitated from the returning brine there is an increasing amount of resistance to flow being built up underground and the disposal well will either be plugged or the required return pump pressures will reach excessively high figures for reasonable rates of injection.



Left: Empty settling basin. Right: Settling tank, aerator, settling basins, and filters of major company's open-type treating system

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SERVING THE OIL AND GAS INDUSTRIES

The problem is complicated, but we may draw comfort from the knowledge that the fundamental principles of brine conditioning are in nowise different from the well-established principles of water treatment. It is unfortunate that the water chemist has not been consulted to greater extent in the design of many existing conditioning plants and most of the operating difficulties can be directly traced to the wanton disregard of the proven fundamentals of water chemistry.

There are two general systems of conditioning brine for subsurface injection. The closed-type system allows for complete removal of suspended matter, but permits retention of other components in permanent solution with the brine. In the open-type system all suspended matter as well as all components that might become suspended are removed before subsurface injection of the brine.

The first method has not been extensively used. The operation cost is high and the chemicals needed in the process are expensive. The process requires that the brine be kept under high pressure from the time it reaches the subsurface until its return underground. Air must be excluded to prevent escape of gases from the brine and consequent unbalancing of the components. Supersaturation of carbonates is minimized by the usual methods of adding hydrochloric acid or carbon dioxide. Pressure filters are recommended and all conduits between the filters and the return well should be corrosion resistant.

The second method, using the open-type system, requires five definite steps. These are: (1) Separation of oil from the brine; (2) aeration for the removal of carbon dioxide and hydrogen sulfide when present; (3) stabilization of carbonate components by intimate contact of the brines with calcium carbonate sludge or other chemical treatment which will effect stabilization and hasten settling of the suspended matter; (4) reduction of the dissolved oxygen in the brine; (5) filtration of the suspended matter.

Equipment Used in Process

As may be expected, the equipment used in the brine-treating process is similar to standard water-treatment equipment, with but slight modifications. The collecting lines for gathering the brine from the various oil wells and carrying it to the treating plant are usually of corrosion-resistant materials such as cast iron or Transite. The pipe sizes and all necessary pumping equipment should be adequate for present and probable future requirements. Special attention should be given to the design and construction of pumping equipment and metering devices, bearing in mind the corrosive action of brines and the variations in quantity and head requirements that may be expected.

Aerators may be of ordinary design. However, increased efficiency will result if forced draft is applied, due to the high concentration of gases which are heavier than air and therefore tend to remain in contact with the brine. Chemical feeders are similar to those used in water treatment. For efficient feeding of dry and liquid chemicals, home-made devices have proven unsatisfactory, and standard makes are recommended.

The designs of the other treating units for brine conditioning depend upon the specific process adopted. In general, settling tanks are used only where chemical treatment is unnecessary. When chemicals are added, some type of reaction and sedimentation tank is provided, wherein the chemical and physical reactions within the brine may reach partial equilibrium. Frequently, mechanical devices are used to reduce the time required for stabilization. These are most effective in the stabilization of carbonates. Here again we may well use the knowledge gained in water treatment as our safest guide.

Filters are used for removal of precipitated or suspended matter from the brine. Various types of filter media are available, but sand is found to be the cheapest and best material. Slow sand filters may be used, but the rapid or pressure type is preferred. The U. S. Bureau of Mines recently published a comprehensive report by Taylor & Christianson in Bulletin R.I. 3334 "The Application of Sand Filters to Oil-Field Brine-Disposal Systems." This report discusses the effects of filtration on various brines and presents comparisons of different filter media and other related studies.

Many Plants in Operation

There are now in operation in the Mid-Continent field a sufficient number of brine-conditioning plants to afford ample data upon which future designs may be based. The Kansas State Health Department in cooperation with the Bureau of Mines has made detailed studies of a number of these plants in Kansas and Oklahoma and their findings are published in the Bureau of Mines Report of Investigations No. 3434. It is hoped that similar studies will be made of the treatment plants in Texas and the reports made available as a guide to future designs.

It is evident that in a state as large as Texas it is impossible to formulate fixed rules for brine disposal and apply these rules to all oil fields. The wide difference in topography, geology, rainfall and other conditions precludes any such procedure. The most feasible plan appears to be to separate the state into areas, based on drainage basins of one or more rivers, or specific oil fields, and study each area as a unit. Only in this way is it possible to give due consideration to local conditions in the comprehensive study of the entire problem.

These studies should include reports on the topography, and surface-drainage conditions of each area. Maps should be prepared showing the location of all producing wells and the various rivers and creeks in the area. The surface geology should be studied, together with the subsurface data available from logs of oil and water wells. It will be useful to correlate such logs and determine formations carrying potable water which might be subject to brine contamination. In this connection, attention is called to the ground-water surveys which are being made by the U. S. Geological Survey in cooperation with various state agencies. The data published in these reports will be found most useful in such studies, and are available for many areas.

Production data of oil and brine should be secured and tabulated. Data covering the changes in the ratio of brine to oil production from each well for preceding years is valuable. While this will not enable us to make certain predictions, it will assure a more rational guess as to the future and will serve as a useful guide for future planning.

It is essential that reliable information be secured on the types of brines encountered in each area. To do so, mineral analyses are necessary for brines from the different oil-bearing horizons. such analyses should include quantitative tests made on the brine immediately after sampling. It is suggested that in making these tests the standard methods of water analysis be modified in accordinance with the recommendations of the U. S. Bureau of Mines in their Report of Investigations No. 3334.

Finally, careful study should be made in each area of the surface waters and ground waters in their relation to brine disposal. Domestic as well as public well supplies should be investigated, water samples taken and mineral analysis made. Stream surveys, including water sampling at different points on the main stream and tributaries, should be made in sufficient detail to afford a true picture of existing conditions. Where possible, drainage areas should be determined and data secured as to normal and flood flow on each stream.

For carrying out such studies and for implementing any active program based hereon, there must be full cooperation between the oil industry, the individual citizen, and the state. Without a reasoned plan and without support of all interested parties, there can be no permanent or equitable solution to the salt water-contamination program.

●

Keeping Track of Barges on River

By HARRY F. SIMONS

KEEPING account of the whereabouts of barges is a difficult task but the Sohio Corp. office in Mount Vernon, Ill., has devised a chart for this purpose which tells at a glance the position of each tow of barges and the amount of oil available for shipment at each shipping point along the Ohio River.

In addition to two towboats, four barges of 9,000-bbl. capacity each and four barges with a capacity of 30,000-bbl. operated by Sohio Corp., other refineries and pipe lines operate barges and towboats on the Ohio River. River shipments of Illinois, Indiana and Kentucky crude average approximately 7,500 bbl. daily.

The chart for registering the location of each barge consists of a piece of wallboard fastened to the wall by brackets much in the same manner as a bookshelf is erected. The 355 miles of Ohio River from Mount Vernon, Ind., to Cincinnati, Ohio, are scaled off on the chart with all ports and locks located at their proper points; a day's progress up and down stream are also marked on the chart. Model towboats and barges made from wood are placed on this chart, each set being marked with the name of the towboat and the proper number of tanks attached to it. In case a towboat or barge is not in use, the model boats are placed at the point of anchorage on the chart. Gages attached to the wall show the amount of oil in thousands of barrels at each shipping point.

The rate of travel up the river is 3 miles per hour and coming down it is 6 miles per hour; upstream movement is kept on one side of the chart and downstream on the other. Each morning the boats on the chart are moved to the amount they should have traveled the preceding day; in case delay or running ahead of time is reported, position of the model boats on the chart can be readjusted. The dispatcher thus knows the position of each towboat and its barges, when it will arrive at the refinery and how much oil is aboard. Coming downstream, the dispatcher pays little attention to the barges until they get close to Owensboro, Ky. By checking the wall gages which show the oil in storage at the shipping points, he can then direct the barges to their proper loading station.

River terminals for the shipment of crude oil are located at Stanley, Ky. (Birk City crude oil); Henderson, Ky. (Henderson crude oil); West Franklin, Ind. (Heusler crude oil), and Mount Vernon (Carmi and Griffin districts' crude oil).

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Gasoline-Recovery Devices Tested on Stripper Lease

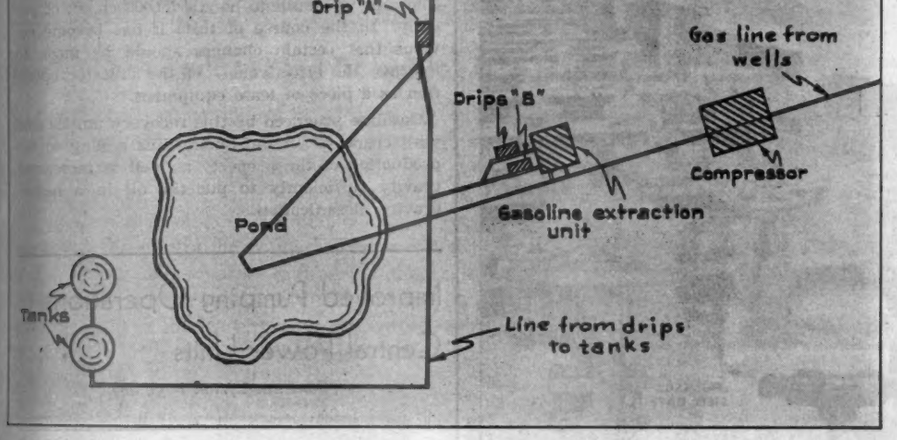
By PAUL REED

For the purpose of determining the practical value of low-cost methods for recovering small quantities of gasoline in connection with the operation of an oil-producing property which has reached the stripper stage, tests are being conducted on a lease in the vicinity of Keystone, Okla. The practices described started with a hookup which made use of old pipe and other material of the kind available on any lease. From this a further step has been taken by experimenting with the possibilities of recovering gasoline through the use of a small unit equipped with refrigeration equipment.

This experimental work has attracted attention of superintendents in the vicinity. Because of the interest manifested, a brief description of what is being undertaken is given here as a progress report without attempting to comment on aspects which should be considered when operating data obtained over a period of time becomes available.

The location of the tests is Superior Oil Corp.'s 160-acre property known as the Grimes and Easley leases, Sections 6 and 7, Township 19, Range 10, Tulsa County, Oklahoma. Production was developed in 1926 and 1927 in the Red Fork sand at a depth of 2,050 ft. Two years ago the production had declined to 11 bbl. per day, when repressuring was undertaken by injecting gas from the wells into one input well. At the present time production is nearly three times what it was before repressuring and is about 600 bbl. per month. Gas is injected by a compressor at a pressure of 135 lb.

In order to recover gasoline from the gas line to the input well cheaply and effectively, Ed Ross, in charge of the lease, laid this line so that it went from the compressor plant into a pond and returned to the bank by what might be called V-like connections. A short distance from the pond a drip of conventional type was installed on the line for the purpose of catching gasoline. The position of this drip is indicated by *A* in the drawing. By turning a valve it is possible to blow the gasoline caught in the drip through a line from the drip to a tank battery. As would be expected, during winter months when water in the pond is cold, this hookup has given its best service. From 30,000 cu. ft. of gas 75 gal. of gasoline per day has been recovered.



Above: Diagram of lines and equipment used in gasoline-recovery tests. Below: Gasoline-recovery unit equipped with refrigerating equipment. Right: Compressor driven by 3-hp. engine. Lower right: Drips receiving gasoline from recovery unit

Lovett Installs Units

With the object of obtaining the greatest possible yield of gasoline from gas produced on a property of the stripper type, Lawrence L. Lovett made a recovery unit which has been installed for test purposes near the gas line between the compressor and the pond. Gasoline from this unit runs into two drips at *B* on the drawing; at present it is blown to the tank battery through the same system which serves the drip at *A*.

It should be pointed out that the location of the recovery unit was selected primarily for the purpose of testing the operation of this unit and not with the intention of making an arrangement by which this unit could be operated in connection with the drip near the pond to best advantage.

The recovery unit is equipped with a 1-ton refrigeration unit of a type which is standard equipment for refrigeration in butcher shops and restaurants using Freon-12 as refrigerant. Power is supplied by a 3-hp. internal-combustion engine. Gasoline has been used as fuel but arrangements are to be made for running the engine on natural gas.

Gasoline is recovered in two coolers which are tubes, tilted slightly in opposite directions to facilitate draining of gasoline; these coolers are about 12 ft. long, insulated with hair felt, and placed one above the other. Incoming gas at 137-lb. pressure enters the unit at the top of one end of the upper cooler which is equipped with a series of baffles. The incoming gas is precooled by cooled gas from the lower cooler, passing through pipe placed alongside the upper cooler. The upper cooler has four outlets at the bottom which are connected with a manifold from which gasoline goes to one of the drips near the recovery unit. It has been observed that while in operation the temperature of the upper cooler has varied from 30° F. to 60° F. It is reported that the lower cooler has been operated at a temperature of about 20° F. From the end of the upper cooler, gas goes to the corresponding end of the lower cooler which consists of 8-in. pipe, equipped with a coil, through which the refrigerant circulates. Gasoline from this cooler is drained to a separate drip near the unit.

Separate distillation tests of gasoline from each of the coolers have been made by Thomas C. Frick, assistant professor of petroleum engineering, University of Tulsa. These are as follows:

UPPER COOLER GASOLINE

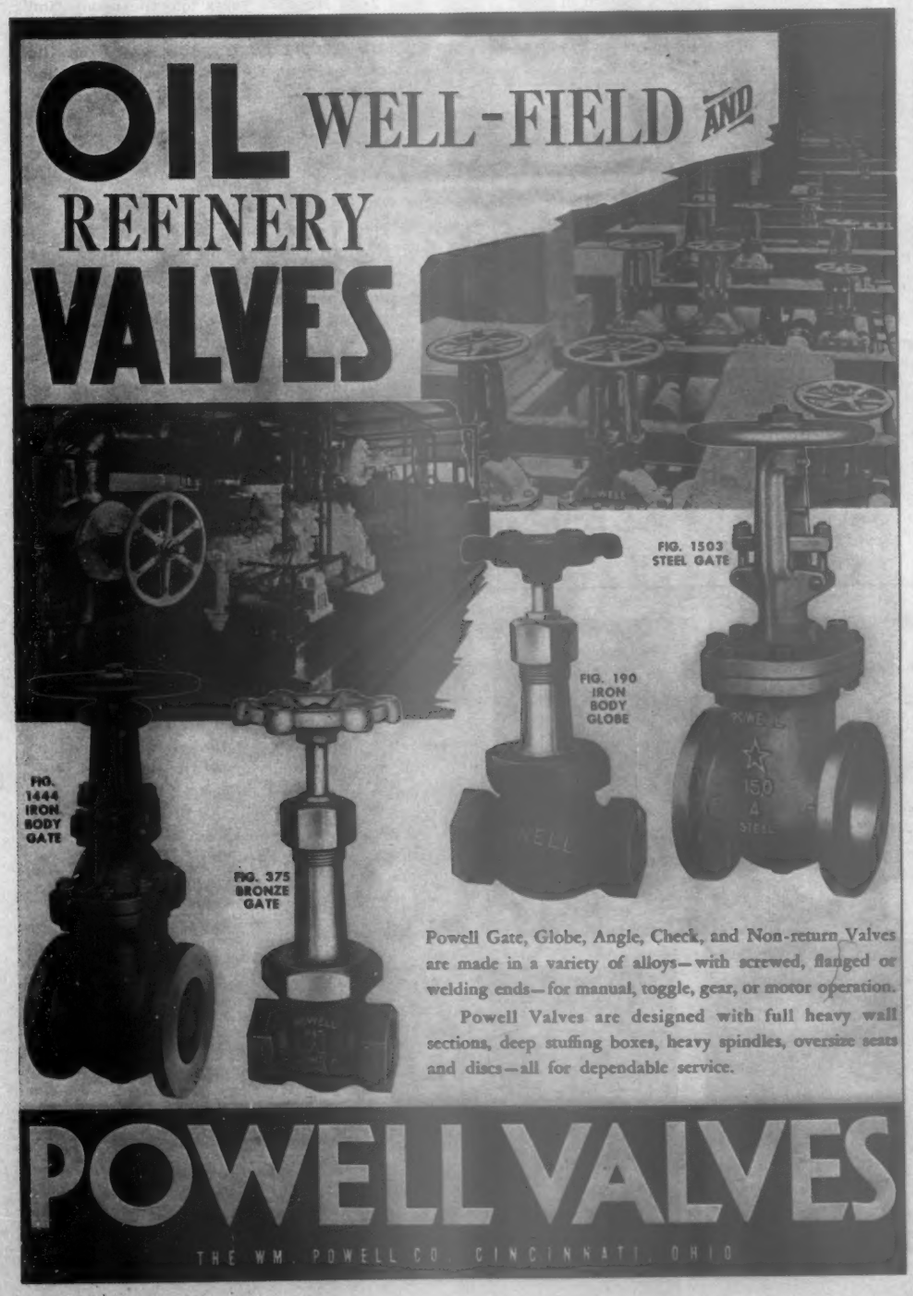
Gravity, A.P.I.	66.7
Color	dark
Distillation:	
Initial boiling point	85° F.
Per cent	°F.
5	136
20	175
50	218
90	288
93	total recovery
End point	329° F.

LOWER COOLER GASOLINE

Gravity, A.P.I.	76.5
Color	light
Distillation:	
Initial boiling point	85° F.
Per cent	°F.
5	102
20	129
50	169
85	238
89	total recovery
End point	279° F.

The amount of gasoline produced in tests has not been disclosed but indication has been given that the output has been sufficiently in excess of what was previously possible to warrant consideration of this method of gasoline recovery. The unit was built to handle 50,000 cu. ft. of gas daily. In the course of tests it has become obvious that certain changes should be made to improve the effectiveness of the unit for operation as a piece of lease equipment.

Gasoline produced by this recovery unit is sold with crude oil in the tanks, thus adding to the production of the property as well as increasing gravity sufficiently to put the oil in a higher gravity classification.


OIL WELL-FIELD AND REFINERY VALVES
FIG. 1503 STEEL GATE
FIG. 190 IRON BODY GLOBE
FIG. 1444 IRON BODY GATE
FIG. 375 BRONZE GATE
Powell Gate, Globe, Angle, Check, and Non-return Valves are made in a variety of alloys—with screwed, flanged or welding ends—for manual, toggle, gear, or motor operation.
Powell Valves are designed with full heavy wall sections, deep stuffing boxes, heavy spindles, oversize seats and discs—all for dependable service.
POWELL VALVES
THE WM. POWELL CO. CINCINNATI, OHIO

Improved Pumping Operations in Central Power Units

(Continued from Page 46)

the entire unit. Crank positions on the dynamomter cards were determined using the theory of simple harmonic motion.

Calculating Horsepower Requirements

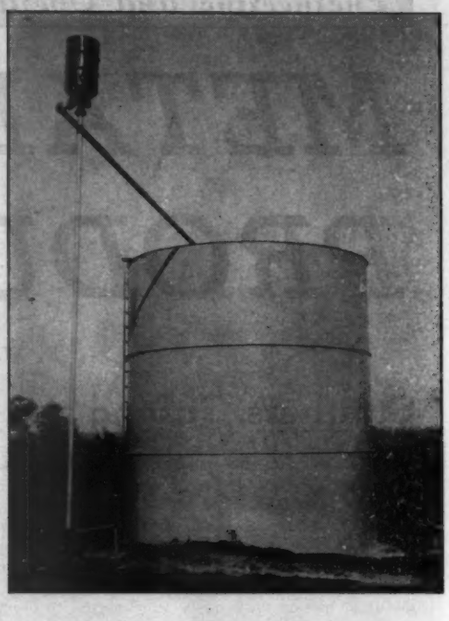
The 12 vector diagrams derived from these data gave engineers the resultant R of all forces at each 30° interval, and in addition the component R_1 which represents the torque acting at right angles to the crank. From the torque component, the horsepower requirement at each 30° interval was calculated and plotted in Fig. 3. This showed a peak load requirement of 107 hp., a minimum load of 6.5 hp. and a differential of 101.5 for the current schedule. See Table 2.

Proposed pumping Schedule A, on the other hand showed a calculated maximum horsepower requirement of 43.0 and a minimum of 9.5, or a differential of 33.5 hp. The revised schedule, together with the use of the computed counterbalances reduced the maximum load on the unit 64 hp., and the differential load 67 hp. In addition, the proposed schedule showed no pronounced peaks which would tend to overload the power in any particular position. The horsepower requirements for Schedule A were assumed to be representative of the other proposed pumping schedules, since the other vector diagrams of proposed schedules showed resultants of approximately the same magnitude. Fig. 4 shows the actual and average torque and horsepower requirements for the two schedules plotted against crank rotation.

Operating Ideas

Simple, Economical Skid-Board for Idle Link

When topographical conditions involve the use of a stroke-post or holdup in the back-crank drive, the connecting link must be supported in such a way that the crank rod and post can move through normal orbits without hindrance, and without involving the use of supporting mechanisms which will complicate the hooking up of the second well when it is desired to pump it. One producer finds that the simple provision of a piece of oaken 2 by 6 in. plank, upon which the end of the connecting link can ride, solves the problem economically and efficiently. The board is merely laid on the ground in line with link motion; it is liberally greased to provide friction-free motion of the lower end of the link. When hooking on the well, it is necessary only to lift the link until it engages with the bar—the position of the switcher while performing this task being to one side of link and post.



Oil Drum Used As Deareator

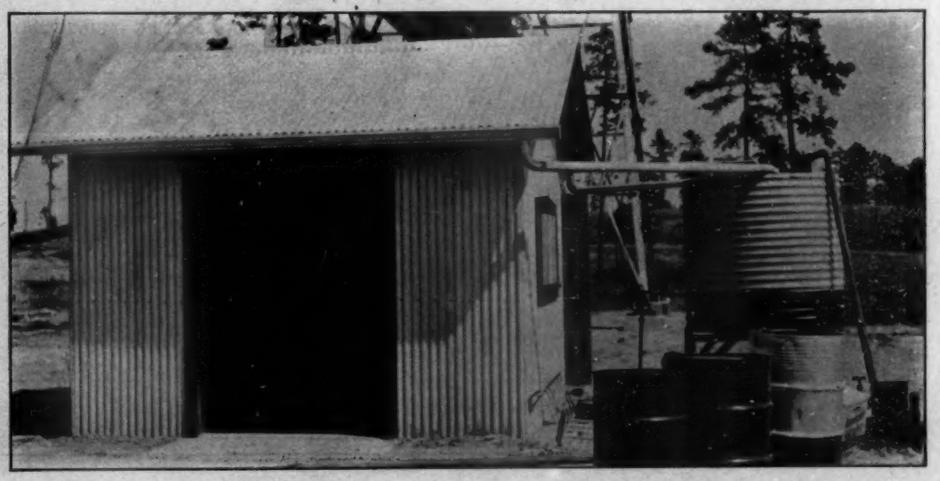
Drilling wells in the Walnut Bend field of Cooke County, North Texas, are supplied with water from a central well producing from a 742-ft. water sand. Air lift is used to raise the water to the surface, the air being supplied by a compressor placed in a nearby building. In order to prevent the water from surging into the tank, the oil drum shown here was placed on top the vertical pipe to act as a deaerator. By this means the air is allowed to escape from the water in the drum so that flow of water from the drum to the tank is not turbulent.

Covering for Well Collars

As a covering for cellars of completed wells an operator in one Gulf Coast field utilizes old sucker rods. The rods are cut the proper length and then welded together to form a grating which rests over the top of the cellar walls. The covering is easily removed.

Economical Storage of Make-Up Water

Where surface water is apt to be salt-contaminated or otherwise unsatisfactory for cooling systems of pumping-unit engines, makeup water for cooling systems must be carefully conserved. Unless it is caught in the form of rainwater, it is sometimes necessary to haul it long distances. By equipping the pump house with gutters and running short conductor pipes to the water reservoir rainwater can easily be saved to make up for evaporation or minor leakage losses. The pipes may be swung away from the tank until dust and other settlings on the roof have been flushed off, then the pipes may be replaced inside the tank for collecting pure water. Use of such systems, with occasional replenishing from a tank truck during protracted dry spells, saves one producer the cost of boring water wells to a depth of 300-odd feet.



METALS in PRODUCTION

By W. L. NELSON

Strainers, Tubing and Valves

THE strainers or screen that are used to keep loosely consolidated oil sand from entering the tubing are not selected according to strength or physical properties but for their resistance to corrosion. Many strainers consist essentially of a perforated piece of tubing having heavy square wire wrapped around it to form a screen or strainer. The wire wrapping is held apart by means of lugs on the wire or other means, to provide the screen spacing that may be desired. Obviously, the screen can be easily clogged with debris or corrosion products and hence corrosion-resistant wire wrappings such as pure nickel, stainless steel, galvanized iron, brass, admiralty metal and bronze, have been used. Stanley Gill of the Gulf Oil Corporation reports[38] that pure nickel liners gave excellent resistance to corrosion in a number of Texas wells.

The large tonnage of steel that is used as casing and tubing, and the fact that tubing and casing fail primarily by corrosion, has been a discouragement to the use of alloy steels for this purpose. In other words, the low-alloy steels do not possess a sufficient resistance to corrosion to justify their use, and the high-percentage-alloy steels are far too expensive for use as casing or tubing. Nevertheless, some low-alloy steels have found favor and some of these are listed in the accompanying table. By far the greatest amount of the casing and tubing now in service consists of plain carbon steel containing 0.27 to 0.35 per cent of carbon which has a yield point of about 37,000 lb. per sq. in.

Different Service Requirements

Valves, casing-head bodies and blowout preventer parts, present entirely different service requirements from those of casing or tubing because they must sustain extreme loads and because they are not symmetrical in shape. Thus valve bodies and parts can often be made of alloy steels, and heat-treating operations are usually justified. This applies particularly to bolts, studs and valve stems because these parts cannot be as heavy as other parts. The bolts, studs, etc., must sustain particularly severe loads in tension, shear and shock—and hence they are usually constructed of alloy steels that are heat-treated to an extreme strength and hardness. In connection with valve bodies, etc., the higher strength exhibited by forged materials is not of primary significance because the same total strength can be obtained in cast materials at about the same cost.

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This and succeeding articles comprise a series of articles which The Oil and Gas Journal is publishing on the use of metals in the entire petroleum industry. Eleven articles on Metals in Drilling have already been published. (August 10 to February 8). The present series of about five articles will pertain to the producing of oil, and in the future, a number of articles on transportation, refining, gasoline plants and marketing, will appear. The materials are not necessarily the choice or recommendations of the editorial staff of The Oil and Gas Journal. The materials here given have been proposed by various metal and equipment manufacturers.

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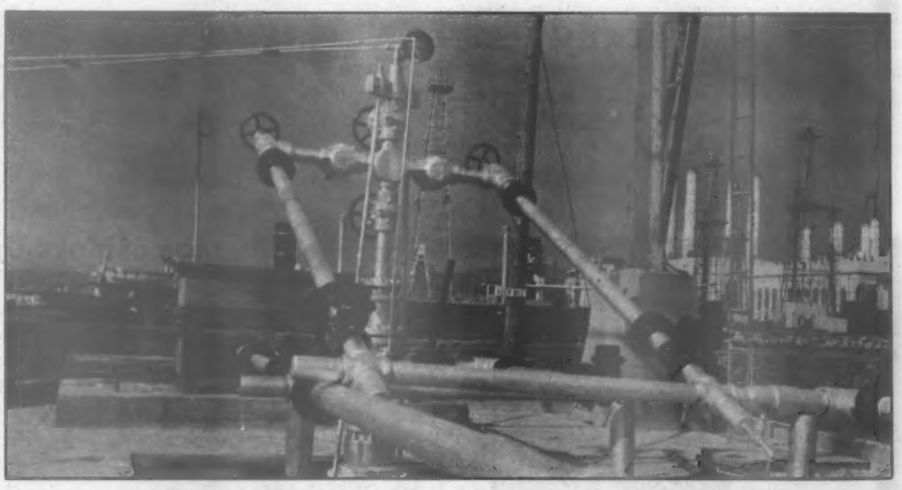

High-pressure fittings, pipe and controls call for special alloys

References

6. Anon. "Molybdenum Steels in Oil Production," Bulletin of Climax Molybdenum Co. 1939.
11. Wilson, J. E., "Molybdenum in Modern Oil Drilling and Production Equipment," 17th Annual Meeting A.P.I., Chicago, November 10, 1936.
15. Zima, A. G., "Nickel Alloy Steels in Petroleum Production Equipment," A.P.I., Tulsa, May 1936.
21. Morton, B. B., "Nickel-Bearing Alloys," The Oil Weekly, April 5, 1937.
27. Cone, E. F., "Low-Alloy High-Strength Steels," Metals and Alloys, p. 243, Oct. 1938.
38. Gill, Stanley, "Field Tests Develop Improved Strainer," Inco Magazine, Vol. 9, No. 4.
45. Hodell, L. R., "Suitability of Some Casing Steels for Field Welding," The Oil and Gas Journal, p. 103, Nov. 18, 1938.

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Metallurgical Terms

Brinell Test

An indentation hardness test (A.P.I. Code No. 28) in which a steel ball having a diameter of 10 mm. is pressed into the surface of the metal to be tested by a load of 3,000 kg. for 30 seconds (for soft metals a weight of 500 kg. is used for 60 seconds), the indentation is then measured by the use of a measuring microscope and the hardness calculated from the following formula:

$$H = \frac{P}{(\pi D/2)\,[D - \sqrt{D^2 - d^2}]}$$

Where:

H = the Brinell hardness number
P = load applied
D = diameter of ball
d = diameter of the ball impression.

VALVE BODIES, STEMS AND BOLTING, AND TUBING

Equipment—	Material*—	Chemical analysis—per cent— C	Mn	Ni	Cr	Mo	Others	Physical properties: Yield point	Elong.	Brinell	Heat treatment—	Ref.
Stems and seats	Monel metal	(Al 3.5)	63.0		(Fe 1.5)		Cu 3.0				(Severe sulfide corrosion)	21
Valve bolting and stems	S.A.E. 4140	.4	.75		.95	.2		140,000	16	315	Oil quenched and tempered	11
	S.A.E. 3140	.4	.75	1.25	.6			134,000	15	300–352	Oil quenched and tempered	15
	S.A.E. 3240	.4	.45	1.75	1.1			125,000	16	302	Oil quenched and tempered	15
	S.A.E. 2330	.3	.65	3.5				134,000	18	300–325	Oil quenched and tempered	15
	S.A.E. 4615	.15	.55	1.8		.25		95,000	24	269	Oil quenched and tempered	6
Valve bodies, blowout preventer	Cast carbon steel	.25	.7					44,000	31	143	Normalized and drawn	
	Cast molybdenum steel	.27	.6			.5		60,000	21	200	Normalized and drawn	6
Bodies, casing-head	Cast mang. molybdenum steel	.33	1.23			.24		75,000	21	190	Normalized and drawn	6
Bodies	Cast nickel steel	.26	.9	1.76				60,000	15		Normalized and drawn	15
	Forged S.A.E. 3140	.4	.75	1.25	.6			95,000	22	235	Quenched and tempered	21
	Forged S.A.E. 4140	.4	.75		.95	.2		110,000	23	260	Quenched and tempered	11
Casing and tubing	Cromansil	.2	1.2		.5		Si .75	54,000	18	150	Quenched and tempered	27
	S.A.E. 6120	.18	1.2				Va .1	50,000	18		Quenched and tempered	27
	Mang. molybdenum	.25	1.4			.2		70,000	17		Quenched and tempered	6
	Mang. molybdenum	.32	1.35			.48		83,000	30	229	Quenched and tempered	45
0.5	Copper steel	.22	1.12				Cu .53	60,500	38	153	Quenched and tempered	45
1.0	Copper steel	.22	1.37				Cu 1.02	83,400	28	220	Quenched and tempered	45
	Mang. steel	.22	1.35					77,600	29.5	165	Quenched and tempered	45
	Mang. steel	.45	1.32					63,750	27	212	Quenched and tempered	45
	Carbon steel	.30						37,000	32		Quenched and tempered	

*The letters S.A.E. refer to the alloy-steel specifications of the Society of Automotive Engineers.

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QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Bar Inspection Test for Locating Pipe-Line Leakage

Could you give me the details of what is called the bar test, used for the detection of escaping natural gas? I understand that this test is used in connection with the inspection of gas pipe lines.—W. M. O.

Systematic inspection of pipe lines transporting natural gas for leakage is necessary. One of the methods employed is to drive a stake or bar into the ground either above or adjacent to a covered line at regular intervals along the line, then withdraw the bar while twisting it so as to leave a hole to which a lighted torch is applied.

Diehl mentions this sort of inspection and makes this comment: "In certain kinds of soil the leaking gas or the heat of the sun often tends to form a crust over a leaking joint, thereby forcing the leaking gas in different directions through the ground, and especially along the pipe, instead of directly to the surface. If, after driving the bar into the ground, the gas is found to burn at the openings made by it, the exact location of the main leak can be determined by the comparative sizes of the flames at the openings. As the holes approach the main leak, it will be noticed that the flames increase in size, thereby locating the point at which repairs are to be made. Very often gas will travel along a pipe line many feet from the original point of leakage before coming to the surface."

Reference: Diehl, Natural Gas Handbook, p. 331.

Copper-Strip-Corrosion Test For Motor Benzol

What is the special test used for testing benzol for corrosive forms of sulfur?—D. L.

What is known as the manufacturer's copper-corrosion test for benzols, toluols, and xylols is a modification of the copper-strip test applied for the inspection of gasoline. The details follow.

Apparatus.—A wide-mouth flat-bottom 3-oz. flask glass condenser 12 in. long. Cork stopper to fit flask to condenser tube. Copper strip 2½ by ¼-in of 20 B. & S. polished copper with small ⅛-in. hole ⅛-in. from end. Soft copper wire. Water bath.

Procedure.—Polish the copper strip with fine emery cloth after fastening the wire through the hole. Place the strip in the flask, add 200 ml. of the sample, then connect the flask to the vertical reflux condenser by means of a properly fitted cork stopper. The strip should be completely immersed.

Place the flask in the water bath so that it will be immersed to the surface line of the liquid in the flask. After 30 minutes remove the strip.

Interpretation.—For pure products any iridescence shall be cause for rejection. For motor benzol, a slight peacock discoloration may be present, but a gray or black deposit or coloration shall be noted as positive.

The A.S.T.M. test for the detection of free sulfur and corrosive sulfur compounds in gasoline is similar in principle but apparently more severe. The essential part of the description of this test is as follows:

Procedure.—(*a*) A clean strip of mechanically polished pure sheet copper about ½ in. in width and 3 in. in length shall be placed in a suitable clean tube or sample bottle. Gasoline under test shall be added so that copper strip is completly immersed. The test tube or sample bottle shall be closed with a loosely fitting cork and held in a suitable bath at 122° F. (50° C.).

(*b*) At the end of 3 hours the strip exposed to the gasoline shall be removed and compared with a similar strip of freshly polished copper.

Detection of sulfur.—The presence of sulfur or corrosive sulfur compounds is indicated by the corrosion or discoloration of the gasoline-exposed strip when compared with the freshly polished copper strip.

(*a*) Gasoline shall be reported as passing the test when on examination the exposed strip shows not more than extremely slight discoloration as compared with the fresh copper strip.

(*b*) Gasoline shall be reported as not passing the test when on examination the exposed strip shows more than extremely slight discoloration as compared with fresh copper strip.

Adequate Inspection of Portland Cement Related to Service

Could you supply us with the proper or standard tests used to show the quality of portland cement?—G. E. W.

The inspection of portland cement will depend on what use is to be made of the material. The tests applied to determine quality or fitness for the special use may be quite simple or extremely complex. Recently the committee on cement of A.S.T.M. prepared a set of specifications. These relate to five types of cement: (1) when special properties are not required; (2) where superior resistance to weathering, moderate heat of hydration, or moderate sulfate resistance is required; (3) high early strength; (4) low heat of hydration; (5) high sulfate resistance.

The details of these are indicated in the tables.

Reference: A.S.T.M. Bulletin January 1940, p. 39.

TABLE 1—CHEMICAL REQUIREMENTS

	Type 1	2	3	4	5
Magnesium oxide (MgO), max., per cent	5.0	5.0	5.0	5.0	4.0
Sulfur trioxide (SO_3), max., per cent	2.0	2.0	2.5	2.0	2.0
Loss on ignition, max., per cent	4.0	3.0	4.0	2.0	3.0
Insoluble residue, max., per cent	0.85	0.75	0.85	0.75	0.75
Silica (SiO_2), min., per cent	....	21.0	....	....	24.0
Alumina (Al_2O_3), max., per cent	....	6.0	....	..	4.0
Iron oxide (Fe_2O_3), max., per cent	....	6.0	....	6.5	4.0
Ratio, Al_2O_3/Fe_2O_3	....	0.7 to 2.0	....	....	0.7 to 2.0
Tricalcium silicate ($3CaO \cdot SiO_2$),* max., per cent	....	50	....	35	....
Dicalcium silicate ($2CaO \cdot SiO_2$),* min., per cent	....	..	..	40	....
Tricalcium aluminate ($3CaO \cdot Al_2O_3$),* max., per cent	...	8	15	7	5
Uncombined lime in clinker, max., per cent	(†)	(†)	(†)	(†)	(†)
Sodium and potassium oxide, max., per cent	(†)	(†)	(†)	(†)	(†)

*The expressing of chemical limitations by means of calculated assumed compounds does not necessarily mean that the oxides are actually or entirely present as such compounds.

The percentages of tricalcium silicate, dicalcium silicate, and tricalcium aluminate shall be calculated from the chemical analysis as follows:

Tricalcium silicate = 4.07 CaO — 7.60 SiO_2 — 6.72 Al_2O_3 — 1.43 Fe_2O_3 — 2.85 SO_3.

Dicalcium silicate = 2.87 SiO_2 — 0.754 × $3CaO \cdot SiO_2$.

Tricalcium aluminate = 2.65 Al_2O_3 — 1.69 Fe_2O_3.

Oxide determinations calculated to the nearest 0.1 per cent shall be used in the calculations. Compound percentages shall be calculated to the nearest 0.1 per cent and reported to the nearest 1 per cent.

†Value to be inserted by the purchaser in case he desires to use this test.

TABLE 2—PHYSICAL TEST REQUIREMENTS

	Type 1	2	3	4	5
Fineness, specific surface, sq. cm. per g.:					
Average value, any one lot, not less than	....	1800	....	1800	1800
Minimum value, any one lot	....	1700	....	1700	1700
Soundness:					
Standard pat test	(*)	....	....	....	....
Autoclave expansion, maximum, per cent	....	0.50	0.50	0.25	0.25
Time of setting:					
Initial set (Gillmore), min., minutes	60	60	60	60	60
(Vicat), min., minutes	45	....	45	....	....
Final set (Gillmore), max., hours	10	10	10	10	10
Tensile strength, psi.:†					
The average tensile strength of not less than three standard mortar briquets composed of one part cement and three parts standard sand by weight shall be equal to or higher than the values specified for the ages indicated below:					
1 day in moist air	....	....	275	....	....
1 day in moist air, 2 days in water	....	125	375	....	....
1 day in moist air, 6 days in water	275	250	....	175	175
1 day in moist air, 27 days in water	350	325	(‡)	300	300
Compressive strength, psi.:†					
The average compressive strength of not less than three mortar cubes composed of one part cement and 2.75 parts fine testing sand by weight shall be equal to or higher than the values specified for the ages indicated below:					
1 day in moist air	....	....	1300	....	....
1 day in moist air, 2 days in water	....	1000	3000	....	....
1 day in moist air, 6 days in water	....	2000	....	800	1000
1 day in moist air, 27 days in water	....	3000	(‡)	2000	2200
Heat by hydration, 28 days, cal. per g., max.	....	....	....	75	....

*A pat of neat cement shall remain firm and hard and show no sign of distortion, cracking, checking, or disintegration when subjected to the steam test for soundness described in Sections 14 to 16, inclusive, of the Standard Methods of Sampling and Physical Testing of Portland Cement (C 77-39) of the American Society for Testing Materials.

†The purchaser shall specify the type of strength test required. In case he does not so specify, the requirements for tensile strength only shall govern.

‡If, at the option of the purchaser, a 28-day test (with storage of 1 day in moist air and 27 days in water) is required, the average strength at 28 days shall be higher than the strength at 3 days.

FIELD OPERATIONS

Summarizing the Week's Developments

OKLAHOMA—The discovery of oil in the Tulip Creek sand, Simpson series, at a wildcat near the Washita River, in eastern Marshall County and near the Johnston and Bryan county lines, was the major development in Oklahoma. The wildcat flowed 5 bbl. of oil a minute on 14-minute drill-stem test and was estimated good for 3,000 to 5,000 bbl. daily. Operators were drilling deeper to test lower formations before completing. Oil men believe it is the most important strike in Oklahoma since discovery of the Fitts field, Pontotoc County.

TEXAS: Gulf Coast—Extensions of the proven fields and the encouraging showing of a wildcat 5 miles east of the Hankamer field in Liberty County were the only features in the Texas Gulf Coast.

Southwest Texas—New sand discoveries and pool extensions and the fact that five drilling wells along the Jackson shore-line trend are at a critical stage in their search of Tertiary Wilcox production comprised the interesting news from this area.

West Texas—An outpost test more than 1½ miles south of the 5,200-ft. Holt horizon production in Ector County is indicating commercial production.

North Texas—The discovery of the second new oil field in Montague County in as many weeks was the highlighting event of the North Texas wildcat play of the past week. The well is expected to gage about 7,000 bbl. daily from the Caddo lime.

West Central Texas—New wildcat locations projected to the prolific Palo Pinto lime horizon during the past few weeks have increased the West Central Texas area's wildcat play to near the high mark of last summer.

Eastern Texas—The discovery of eastern Texas' second deep Pettit lime oil field was in prospect as a wildcat in Camp County drilled saturation and shut down to cement casing.

LA-ARK-TEX—A show of oil in the shallow Blossom horizon drew attention to the Standard Oil Co. of Louisiana's No. 1 Sturgis, in Miller County, Arkansas. Two La Salle Parish wildcats in Louisiana, one of which has a show of oil and is testing, were also of interest. Iberia Parish has a pool in prospect on the Cote Blanche salt dome 19 years after the dome was discovered.

NEBRASKA—A dry hole in Arbuckle lime was completed about 2 miles west of Nebraska's only oil well, in Richardson County.

KANSAS—A pool opener was completed in Ellsworth County, and a new oil area was found west of Wichita, Sedgwick County. Deep-lime production was found in the old Beaumont Peru sand pool in Greenwood County.

ILLINOIS—A total of 102 Devonian lime completions in the Salem field in Marion County were recorded at the close of the week's completion report. The average initial production of the weekly crop of wells in this big pay has been steadily declining as the weeks pass, indicating the big drain on the formation.

INDIANA—A pool was opened in Section 21-3s-12w, Gibson County, by a 300-bbl. pumping well, which had been acidized.

SOUTHEAST NEW MEXICO—The staking of 21 new locations in Lea and Eddy counties brought southeastern New Mexico's field development to the highest point in several months. Four of the locations were in a recently opened area in northern Eddy County, north of the Artesia field.

Completions in All Fields

(Week Ended March 9, 1940)

	Oil	Gas	Dry	Total	1940 total comp. to date	1939 total comp. to date
N. Y., Pa., and W. Va.	58	6	2	66	737	648
Ohio	8	9	7	24	177	174
Indiana	2	2	1	5	66	29
Kentucky	3	7	3	13	76	102
Illinois	55	1	10	66	654	677
Michigan	12	0	9	21	262	208
Kansas	21	1	9	31	274	212
Oklahoma	23	6	15	44	335	331
Texas:						
North Central Texas	35	0	24	59	607	420
West Texas	42	0	4	46	457	372
Texas Panhandle	9	2	0	11	125	69
East Texas	4	0	0	4	58	160
East Central Texas	2	4	3	9	53	45
East Texas Border	0	0	1	1	10	19
Gulf Coast Texas	16	0	2	18	259	247
Southwest Texas	32	1	14	47	448	420
Total Texas	140	7	48	195	2,017	1,752
North Louisiana	7	0	2	9	106	93
Gulf Coast Louisiana	10	0	2	12	152	125
Total Louisiana	17	0	4	21	258	218
Arkansas	4	0	1	5	45	51
Montana	1	0	0	1	28	23
Wyoming	1	0	0	1	29	20
Colorado	0	0	0	0	5	2
New Mexico	10	0	1	11	156	122
California	12	0	5	17	207	180
Total United States	367	39	115	521	5,326	4,749
Total previous week	370	30	106	506		
Week ended Mar. 11, 1939	273	30	98	472		

Outstanding Fields—Highlights

(Week Ended March 9, 1940)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	28	38	5	3,441	1,279	44,250
Wasson-Bennett	15	80	14	15,910	690	33,747
Ector County	18	61	13	13,468	2,012	54,847
Pecos County	10	16	4	542	1,247	36,298
Jones County	11	16	3	717	595	8,300
East Texas	5	15	4	135	25,985	398,000
OKLAHOMA						
St. Louis	4	26	1	388	872	32,350
Cement	5	24	0	0	295	6,550
KANSAS						
Bemis	1	5	1	3,000	276	6,200
Burnett	3	8	3	3,226	71	3,226
Silica	1	10	3	1,196	608	13,600
Trapp	4	8	0	0	495	11,700
NEW MEXICO						
Lea County	14	52	3	999	2,397	97,490
Eddy County	19	62	7	4,775	530	15,810
LA-ARK-TEX						
Cotton Valley, La. (deep)	0	5	0	0	154	13,840
Magnolia, Ark.	1	5	2	1,030	97	19,860
Golden Meadow, La.	3	12	3	1,080	61	8,180
MICHIGAN						
Freeman-Redding	2	10	1	230	144	13,673
Kent County	3	28	1	100	282	18,804
CALIFORNIA						
Montebello	0	13	3	1,252	356	24,050
ILLINOIS						
Salem	11	129	22	34,705	1,724	260,239
Louden	3	32	8	1,413	1,359	70,888
Other fields	27	244	25	6,946	3,506	76,393
Old fields	....	.....	....	.....	.....	7,150
MISSISSIPPI						
Tinsley field	2	12	3	2,960	26	7,430

Illinois, Indiana and Kentucky

By STAFF CORRESPONDENT

New Pool in Illinois and One In Indiana; Production Peak

MATTOON, Ill., Mar. 11.—Pure Oil Co. opened a pool in Jasper County, north of the Dundas pool in northern Richland County, in the past week at its No. 1 Warren, CEL NE NW Section 33-6n-10e, which got McClosky lime at 2,822-28 ft., total depth 2,848 ft. and in a drill-stem test recovered 270 ft. of oil in the testing tool in 12 minutes. The test covered 43 ft., from 2,805 ft. to 2,848 ft.

Three fourths of a mile north of Devonian lime production in Section 21-2n-2e, in the Salem field in Marion County, Kingwood Oil Co.'s No. 4-C Shanafelt, 150 ft. from the south and 385 ft. from east lines of NW¼ Section 16-2n-2e, failed to find production in the Upper Devonian and was drilling ahead in the hope of finding a Lower Devonian pay. The well was less than a mile north and east of the Kingwood's discovery well on the Shanafelt farm in the NE¼ of Section 20.

Fifty-five oil wells were completed in Illinois in the past week, with a total initial production of 43,064 bbl., some of the big wells having made only short-time flows on their initial day, and only the actual quantity of initial production having been recorded. Twenty-two oil wells were completed in the Salem field of which 21 were Devonian lime producers. Actual initial production of the 22 wells was 34,705 bbl. In the Tonti pool in Marion County one Devonian lime well registered a 2,424-bbl. initial output. In the Louden field in Fayette County eight wells produced 1,413 bbl. the first 24 hours and in the St. James pool, in the same county, three wells flowed 272 bbl. The record in other counties included Richland with four wells and 843 bbl. initial production; Clay, two wells, 238 bbl.; Clinton County, four Devonian lime wells, 1,349 bbl.; Jefferson County, one well, 68 bbl.; Wayne County, three wells, 501 bbl.; Wabash County, two wells, 247 bbl.; Washington County, one well, 21 bbl.; White County, four wells, 883 bbl. One dry hole each was completed in Macon, Marion, Fayette, Wayne, Wabash, Gallatin and Schuyler counties. Three dry holes were completed in White County. All were wildcats.

Kingwood Oil Co.'s discovery well in Hamilton County was not yet completed. It is No. 1 Wilson, NW NW SE Section 6-6s-7e, which is awaiting the completion of a pipe line to a railroad at Dale. It is a Cypress sand well but has not yet been given a production test.

A new peak in production was reached in the past week when the state produced an average of 414,670 bbl. per day, or 224 bbl. per day more than in the week ended February 24. Last week Salem produced an average of 260,239 bbl. per day; Louden 70,888 bbl. and other fields in the basin 76,393 bbl. The old fields produced 7,150 bbl. per day. The total was far below the potential production of the state and represented only pipe-line demand.

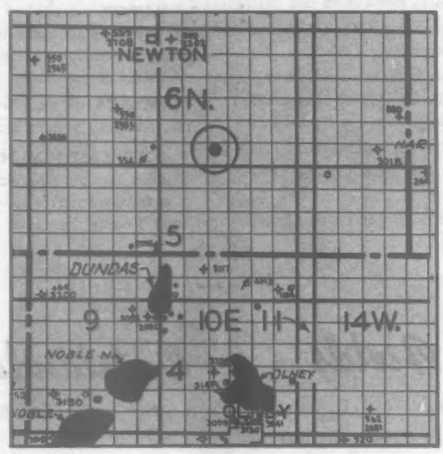
Following were the completions of the week, the initial production representing 24 hours unless otherwise stated.

In Schuyler County Miller's No. 1 Wilson, SW SW NE Section 2-3n-3w, Niagara lime topped at 650 ft., total depth 676 ft., dry and abandoned.

In Macon County Eureka Oil Corp.'s No. 1 Rhodes, SW SW NW Section 28-17n-3e, was dry and abandoned in Silurian lime topped at 2,226 ft. and drilled to 2,238 ft. It topped Devonian lime at 2,216 ft.

Fayette County

In the Louden field in Fayette County Carter Oil Co.'s No. 3 C. Miller, SW SE NE Section 16-8n-3e. total depth 1,611 ft., was plugged back to 1,581 ft. and shot with 40 and 20 qt. It flowed 420 bbl. in 24 hours from Paint Creek stray sand at 1,552-81 ft. and Cypress at 1,475-1,505 ft. Carter's No. 3 Lizzie Smith, SE SE SE Section 31-8n-3e, total depth 1,580 ft., swabbed 144 bbl. per day after two shots of 15 qt. each. Carter's No. 17 H. Durbin, NE SE SE Section 5-7n-3e, total depth 1,576 ft., had casing ripped at 1,483-90 ft. and 1,512-18 ft., and was shot with 30 qt. at 1,553-63 ft. It swabbed 348 bbl. from Cypress and Paint Creek sands. W. C. McBride, Inc.'s No. 6 Logue, SE cor. NE SW NW Section 8-7n-3e, Paint Creek sand at 1,538-42 ft., shot with 10 qt., pumped 28 bbl. per day. Carter Oil Co.'s No. 4 Ed Harper, NE SW NW Section 17-7n-3e, total depth 1,551 ft., shot with 10, 3 and 15 qt., swabbed 144 bbl. Shell Oil Co., Inc.'s No. 5 Jedamski, SE NE SW Section 21-7n-3e, Cypress sand



E. C. Jacobson, Maps, Tulsa

Pure Oil Co. seems assured of a new pool opener in Jasper County, north of the Dundas pool in Richland County. Well made a good showing on a drill-stem test

topped at 1,557 ft., total depth 1,581 ft., shot with 10 and 11 qt., pumped 87 bbl. in 16 hours. Shell's No. 5 Van Buening, NE SE NW Section 28-7n-3e, Cypress at 1,570-85 ft., shot with 4 qt., pumped 80 bbl. Carter Oil Co.'s No. 13 Griffith, NW NW SE Section 31-7n-3e, Cypress sand at 1,545-88 ft., shot with 15 qt., swabbed 162 bbl.

In the St. James pool, Fayette County, Texas Co.'s No. 1 G. Elridge, NW NW NW Section 5-6n-3e, Cypress sand at 1,601-21 ft., tested 10 bbl. of water per hour; abandoned. Ohio Oil Co.'s No. 4 Schwarm and others, NE SE SW Section 30-6n-3e, shot with 7 qt. in Cypress sand at 1,543-58 ft., pumped 125 bbl. per day. Texas Co.'s No. 1 Wright, SE NW SW Section 31-6n-3e, SE NW SW Section 31-6n-3e, Cypress sand at 1,586-94 ft., shot with 5 qt., pumped 147 bbl. Ohio Oil Co.'s No. 1 Peters, NE NE NW Section 36-6n-2e, Cypress sand pay at 1,603-11 ft., total depth, shot with 3 qt., pumped 100 bbl.

Richland County

In Richland County Pure Oil Co.'s No. 1 D. W. Blair A, SW NE SW Section 24-4n-9e, Cypress sand at 2,587-2,601 ft., shot with 20 qt. in the bottom 3 ft., pumped 57 bbl. of oil and 12 bbl. of water in 24 hours. Pure's No. 1 Snider, NE SE NW Section 6-4n-10e, Fredonia lime at 2,843 ft., pay at 2,852-64 ft., acidized with 5,000 gal., pumped 302 bbl. of oil and 90 bbl. of water per day.

Pure Oil Co.'s No. 12 Montgomery, N½ NW SW NW Section 4-3n-9e, had Cypress pay at 2,577-78 ft., total depth, and pumped 170 bbl. of oil in 24 hours. Pure's No. 7 Hundley, CSL N½ SE NE Section 5-3n-9e, Cypress pay at 2,580-88 ft., total depth, pumped 314 bbl. of oil and 60 bbl. of water per day.

In Clay County Pure Oil Co.'s No. 2 L. Schrugham, C SW SW Section 18-2n-8e, Fredonia lime at 2,984 ft., pays at intervals from 2,988 to 3,095 ft., acidized with 5,000 gal. pumped 178 bbl. per day.

Marion County

In the Salem pool, Marion County, Magnolia Petroleum Co.'s No. 82 J. H. Young, NE SE SE Section 20-2n-2e, had Devonian lime at 3,343 ft., best pay at 3,426 ft., total depth 3,457 ft., acidized with 5,000 gal., flowed 400 bbl. per day. Magnolia's No. 86 J. H. Young, SW cor. NE SE SE Section 20-2n-2e, Devonian at 3,345 ft., total depth 3,435 ft., acidized with 5,000 gal., flowed 752 bbl. per day. Magnolia's No. 87 J. H. Young, NE NE SE Section 20-2n-2e, Devonian top at 3,351 ft., pay at 3,388 ft., good pay at 3,420-46 ft., total depth 3,449 ft., acidized with 5,000 gal., swabbed and flowed 400 bbl. per day. Magnolia's No. 89 J. H. Young, NW cor. SE NE SE Section 20-2n-2e, Devonian top at 3,338 ft., pay at 3,386 ft., better pay at 3,416-36 ft., acidized with 5,000 gal., flowed 1,200 bbl. per day. Ohio Oil Co.'s No. 36 Young heirs, SE NE SW Section 20-2n-2e, Devonian top at 3,330 ft., pay at 3,374 ft., better pay at 3,400-19 ft., flowed 166 bbl. naturally in 5 hours. Acidized with 5,000 gal., it flowed 3,624 bbl. per day. Ohio's No. 37 M. Young heirs, SE SE SW Section 20-2n-2e, Devonian top at 3,337 ft., pay at 3,388 ft., better pay at 3,406-23 ft., swabbed 283 bbl. naturally in 7 hours; acidized with 5,000 gal., flowed 3,048 bbl. per day. Shell Oil Co.'s No. 5-C Salem State Bank, SW SW SE Section 20-2n-2e, Devonian top at 3,318 ft., pay at 3,380-3,405 ft., flowed 1,088 bbl. in 16 hours naturally; acidized with 5,000 gal., flowed 2,172 bbl. in 24 hours. Shell's No. 7-C Salem State Bank, SW NW SE Section 20-2n-2e, Devonian top at 3,317 ft., pay at 3,380-3,407 ft., acidized with 5,000 gal., flowed 1,420 bbl. per day. Texas Co.'s No. 25 N. Young, SE SE NE Section 20-2n-2e, Devonian top at 3,349 ft.; pay at 3,395-3,439 ft., acidized with 5,000 gal., flowed 300 bbl. per day through tubing. Texas' No. 30 N. Young, SW cor. SE SE NE Section 20-2n-2e, Devonian top at 3,352 ft., pay at 3,395 ft., better pay at 3,405-38 ft., 5,000 gal. of acid, flowed 66 bbl. in 3 hours, rated at 462 bbl. per day. Tomberlin's No. 4 Young heirs, SE NE SE Sec-

(Continued on Page 89)

EASTERN KENTUCKY

ASHLAND, Ky., Mar. 11.—A revival of drilling operations is indicated in eastern Kentucky. Several locations were reported in the last week and with more promised as soon as spring weather arrives. Geological and scientific scouting by one or two of the larger concerns has been under way in this part of the state, and is considered a follow-up of the intensive leasing campaign in the latter part of last year.

Virginian Gas & Oil Co.'s No. 1277-V on the William H. Blankenship land on Little Rockcastle in Martin County, total depth 1,468 ft., was completed in Maxon sand. The well started at 50 bbl. of oil daily.

Columbian Fuel Co. has completed No. 837-GW at 3,112 ft. in shale. It produced 134,000 cu. ft. of gas initially. It is on the J. R. Sword land on Levisa Fork in Pike County.

Rockcastle Gas Co. completed No. 1 J. E. Chapman on Buffalo Horn in Martin County at 2,732 ft., in shale. It produced 449,000 cu. ft. of gas per day.

United Carbon Co. acidized No. 823 on the Charley Fork tract No. 1 on Biggs Creek in Pike County, using 3,000 gal. at a total depth of 2,045 ft., in Big lime, but did not secure any results.

Kentucky-West Virginia Gas Co.'s No. 5259 John W. Taylor land on Toler Creek in Floyd County was completed at 3,567 ft., in shale. The well is making 327,

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000 cu. ft. of gas daily. The same company completed No. 5261 on the J. P. Sturgill land on Toler Creek in Floyd County. The well made 273,000 cu. ft. of gas daily on first test but has settled down to 189,000 cu. ft. daily from shale.

The Mid-City Gas Co. had a 342,000-cu. ft. gas production in No. 1 R. H. Fields on Parks Branch in Knott County; total depth 2,820 ft., in shale.

Whitis and others completed No. 1 Dempsey heirs on Tug Fork in Martin County with a daily flow of 483,000 cu. ft. of gas. Total depth and formation data were not reported.

C. J. Sipple & Co.'s No. 8 William Salyer on Birch Branch in the Burning Fork district of Magoffin County found sand at 1,084 ft. and was completed at 1,137 ft. Production data was not reported this week.

The Sturgill Gas Co. is deepening No. 1 Kate Weddington on the left fork of Toler Creek, Floyd County.

In Breathitt County Miles and others are fishing for tools at 975 ft. in No. 1 on the Davis Land Co. tract on Lick Fork.

In Morgan County Floyd Fitch was drilling at 1,900 ft. on his tract on Birch Fork. This is the second deep test on this farm. Roy Davis has moved to location for a well 2 miles southwest of Ezel, in the southwestern corner of the county.

In Knott County Warfield Gas Co. is down 850 ft. in slate in No. 4867 on the T. A. Martin tract No. 1 on Bates Branch and was drilling at 1,518 ft. in Maxon sand in No. 4868 Lutitia Hays on the right fork of

(Continued on Page 80)

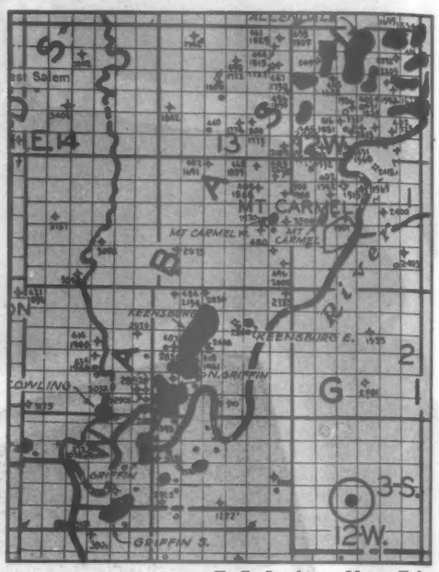
INDIANA

EVANSVILLE, Ind., Mar. 11.—Only four wells were completed in Indiana in the past week in review; a fifth test was abandoned at a shallow depth and a number of near completions were reported. Two oil wells, two gas wells and a dry hole were the week's crop. A bad-road condition held up operations in Gibson and Posey counties, making it impossible to move supplies to wells, some of which were ready for completion but without casing and other equipment.

Following were the completions of the week:

Fotiades and others' No. 1 Fleener, SE NW SE Section 21-3s-12w, Gibson County, made a 300 bbl. pumper after a 3,000-gal acid treatment at 2,706-11 ft. This well, 10 miles east of the Griffin pool, opens a new field.

George Harsh, Jr., and others' No. 1 Keck, NW cor. Section 35-3s-14w, Posey County, was a 75-bbl. pumper after a 40-qt. shot on bottom, with the hole at a total



E. C. Jacobson, Maps, Tulsa

H. Fotiades and others' wildcat in Section 21-3s-12w, opened a pool in Gibson County, Indiana, about 10 miles east of the Griffin pool. The well started at 300 bbl. per day on the pump after an acid treatment

depth of 2,810 ft. Sand was at 2,792-2,808 ft.

In Wayne County John M. Seip's No. 1 McGraw, NE cor. SW Section 24-13n-2w, corrected location, was abandoned at 909 ft. after drilling Trenton lime at 864 ft. to the bottom. It had only a light showing of gas and oil.

In Decatur County Hoosier Public Utilities Co.'s No. 208 Aberle, C NE SE Section 11-9n-9e, had Trenton lime at 857-92 ft. and a 169,000-cu. ft. gas production. It was completed.

In Daviess County F. L. Hartman abandoned No. 3 White, SW cor. NW SW Section 22-2n-7w, at 378 ft.

In Spencer County Damron Brothers completed a 4,424,000-cu. ft. gas well in No. 4 Wright, C NW SW Section 20-7s-6w, in a pay at 898-98 ft.

The dry hole in Putnam County reported last week as having been drilled by John M. Seip was instead drilled by Stanolind Oil & Gas Co. in Section 15-14n-5w, and abandoned. Mr. Seip had nothing to do with this test, which was drilled to 2,829 ft. and found barren of oil or gas.

New Operations

In Gibson County O'Mara, Horton, and others were rigging up rotary for No. 1 A. Maier, 1,155 ft. from the north line and 330 from the east line of SW¼ Section 21-3s-13w. Joe Bander and others were rigging up rotary for No. 30 Cooper, 750 ft. from the south line and 234 ft. from the west line of SE SE Section 13-3s-14w.

In Spencer County Ohio Oil Co. was rigging up rotary for No. 1 Holtzman, 280 ft. from the north line and 330 ft from the east line of SE SE Section 28-4s-4w.

In Sullivan County Forest Oil Corp. was moving in to start No. 1 J. R. Riggs, NW NE SW Section 33-9n-9w.

In Greene County Commonwealth Oil Co.'s No. 1 Tucker, NW cor. NE SE NE Section 16-6n-6e, was spudded.

In Spencer County Kentucky Natural Gas Co. was rigging up machine for No. 1 Scamahorn, C NE SW Section 29-7s-6w. This is a Texas Co. farmout. Kentucky Natural Gas Co. made location for No. 1 Hall, C SE SW Section 29-7s-6w, on a Texas Co. farmout lease.

In Starke County R. J. Violette was moving onto location for No. 1 Hanke, SE cor. SW NW SE Section 18-32n-4w.

(Continued on Page 67)

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California Field Report

By L. P. STOCKMAN

Lowered Foreign Demand for Oil Causes Reduced Drilling

LOS ANGELES, Calif., Mar. 11. — Completions reached a new low in the past week but this is only a temporary lull. Drilling operations are substantially below the amount of work under way several weeks ago, due primarily to decreased work in the Montebello extension where there are only 12 strings of tools in operation. No well in that field has yet been started down to the new zone known to exist below the present flush La Merced zone but some work along this line may materialize later in the year. A few weeks ago it was thought it would be impossible to effect a reduction in drilling operations throughout the state but the new-well committee, a subcommittee of the Central Committee of California Oil Producers, appears to have met with some success. This committee is still at work and it is believed that additional success will be achieved in its attempt to reduce drilling operations in order to permit stabilization of crude-oil production. The necessity of restricting drilling has become an important factor, as Japanese buyers have replaced former liftings in California with crude and refined-oil purchases in Mexico, South America and in the Gulf Coast area. Current production of crude oil is substantially below that of a year ago, but exports to Japan are likewise lower.

Current daily production of leading California fields follows:

	Barrels
Wilmington	83,425
Midway-Sunset	60,640
Kettleman Hills	44,700
Long Beach	45,425
Ventura Avenue	38,550
Huntington Beach	27,650
Santa Fe Springs	25,750
Montebello	20,940
Santa Maria Valley	10,920

Coalinga

Two excellent completions were recorded in the Northeast Coalinga field of Fresno County and another should be tanking oil within a few days. The new wells were No. 62-19-B fee of Standard Oil Co. which was completed flowing 3,734 bbl. of clean 26.6-gravity oil and 2,393,000 cu. ft. of gas daily and No. 3 Husong of Superior Oil Co. which was brought in flowing 1,560 bbl. of 26.7-gravity oil per day along with 814,000 cu. ft. of gas. It hit top of the Kreyenhagen at 6,690 ft., top of the glauconite at 7,740 ft. and cored top of the productive Gatchell zone at 7,915 ft. and was bottomed at 8,330 ft. The well has an elevation of 649 ft. was finished with a 7-in. water string cemented at 7,885 ft. and 516 ft. of 5-in. liner cemented at 8,328 ft. and was gun perforated at 8,160-8,237 ft. The well was brought in flowing through a 42/64-in bean behind a tubing pressure of 940 lb. and a casing pressure of 1,225 lb.

No. 4 Husong of Superior Oil Co. was finished at 8,210 ft. with an 8⅝-in. water string cemented at 8,077 ft. and 140 ft. of 6⅝-in. liner including 80 ft. of perforated landed at 8,205 ft. and cemented through perforations at 8,126 ft. In addition the 6⅝-in. was gun perforated at 8,095-8,105 ft. with 20 ½-in. holes. The tubing was 8,194 ft. in length and had a securaloy packer at 8,114 ft. and a Rasmusen valve at 8,108 ft. This well is in Section 18-19-16 and the crew was moved to No. 4 Husong in the same section preparatory to an early spud. No. 46-18-B or Bandini Petroleum Co. in the same section was finished with 249 ft. of 7-in. liner landed at 7,985 ft. but tested wet and necessitated another cement job.

In the Southeast Coalinga field Texas Co. is in the Gatchell oil sand at 8,028 ft. in No. 2 Anderson in Section 6-20-16 and a 7-in. water string has been cemented at 7,998 ft. Top of the Gatchell was not cored, but is believed to have been found at about 8,015 ft. Top of the glauconite was found at 7,898 ft. and top of the grit zone was cored at 7,999 ft. Standard Oil Co. has No. 42-19-F fee in Section 19-20-16 in the Southeast Coalinga field in the pay at 7,549 ft. and since a 7-in. water string has already been cemented at 7,450 ft. this well should be finished within another week or 10 days at the most.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	March 3		February 25			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	60,642
Fuel oil	.....	.....	.....	.....	152,798	324,591
Diesel and gas oil	.....	.....	.....	.....	.....	163,501
Gasoline	150,746	21,535	.....	.....	276,611	195,754
Kerosene	.....	.....	.....	.....	.....	56,940
Foreign exports—						
Crude oil	367,163	52,452	133,926	19,132	2,615,348	2,718,666
Fuel oil	107,962	15,423	106,742	15,249	1,252,459	1,301,795
Diesel and gas oil	8,690	1,241	25,538	3,648	1,160,489	692,240
Gasoline	201,193	28,742	168,776	24,111	958,769	1,590,555
Kerosene	27,122	3,875	24,327	3,475	187,196	217,243
Coastwise-domestic—						
Crude oil	236,220	33,746	349,216	49,888	1,976,912	1,447,032
Fuel oil	289,926	41,418	460,701	65,814	2,518,129	1,559,900
Diesel and gas oil	80,057	11,437	98,205	14,029	529,852	534,560
Gasoline	269,891	38,556	319,350	45,621	2,481,515	2,151,455
Kerosene	4,591	656	.....	.....	78,436	58,834

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Fuel oil	.....	.....	.....	.....	68,740	.....
Diesel and gas oil	70,547	10,078	.....	.....	281,260	69,550
Asphalt	73,200	10,457	.....	.....	73,200	.....
Lubricants	3,996	571	.....	.....	7,606	4,170
Foreign exports—						
Crude oil	136,754	19,536	.....	.....	392,048	918,258
Fuel oil	.....	.....	.....	.....	175,155	344,717
Diesel and gas oil	73,173	10,453	20,291	2,899	353,208	306,306
Gasoline	20,799	2,971	.....	.....	405,541	610,230
Kerosene	16,306	2,329	.....	.....	84,859	148,834
Lubricants	.....	.....	77,678	11,090	79,651	84,271
Other finished oil	.....	.....	117	17	117	.....
Coastwise-domestic—						
Fuel oil	73,180	10,454	108,932	15,562	1,115,823	860,379
Diesel and gas oil	39,212	5,602	.....	.....	233,704	41,552
Gasoline	148,604	21,229	82,101	11,729	1,303,044	481,236
Kerosene	12,955	1,851	.....	.....	119,681	77,443

TOTAL TANKER SHIPMENTS FROM CALIFORNIA TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Crude oil	.....	.....	.....	.....	.....	60,642
Fuel oil	.....	.....	.....	.....	221,538	324,591
Diesel and gas oil	70,547	10,078	.....	.....	281,260	233,051
Gasoline	150,746	21,535	.....	.....	276,611	66,715
Kerosene	.....	.....	.....	.....	.....	56,940
Asphalt	73,200	10,457	.....	.....	73,200	.....
Lubricants	3,996	571	.....	.....	7,606	4,170
Foreign exports—						
Crude oil	503,917	71,988	133,926	19,132	3,007,396	3,636,924
Fuel oil	107,962	15,423	106,742	15,249	1,427,614	1,646,512
Diesel and gas oil	81,863	11,695	45,829	6,547	1,513,697	998,546
Gasoline	221,992	31,713	168,776	24,111	1,364,310	2,200,785
Kerosene	43,428	6,204	24,327	3,475	272,055	366,077
Lubricants	.....	.....	77,628	11,090	79,651	84,271
Other finished oil	.....	.....	117	17	117	.....
Coastwise-domestic—						
Crude oil	236,220	33,746	349,216	49,888	1,976,912	1,447,032
Fuel oil	363,106	51,872	569,633	81,376	3,633,952	2,420,279
Diesel and gas oil	119,269	17,038	98,205	14,029	763,556	576,112
Gasoline	418,495	59,785	401,451	57,350	3,784,559	2,632,691
Kerosene	17,546	2,507	.....	.....	198,117	136,277

Wilmington

Two relatively small wells were completed in the Wilmington field of Los Angeles Basin this week but a third well, No. 128 fee of Union Pacific Railroad Co. was brought in flowing 910 bbl. of 26.8-gravity oil from the Terminal zone behind a tubing pressure of 370 lb. and a casing pressure of 750 lb. No. 128 fee was carried down to 3,950 ft. but was plugged back to 3,840 ft., the completion depth, after a fault zone was found below 3,841 ft. This well was finished with an 11¾-in. water string cemented at 2,493 ft. and a combination 6⅝-in. and 8⅝-in. liner landed at 3,840 ft. and cemented through perforations at 2,861 ft. and 3,430 ft. The bottom 398 ft. of the liner consisted of 6⅝-in. Perforations opposite the oil sand were at 2,868-2,997 ft., 3,010-3,143 ft., 3,159-3,211 ft., 3,220-23 ft., 3,338-78 ft., 3,432-3,526 ft., 3,545-3,605 ft., 3,625-95 ft., 3,705-31 ft. and at 3,772-3,840 ft. Production was brought in flowing through a string of 2½-in. tubing that had a packer at 3,399 ft.

No. 1 Shaffner of Western Annex Oil Co., near Wilmington Boulevard and Santa Fe Avenue, flowed 191 bbl. of clean 15.9-gravity oil per day from the Ranger zone with bottom of the hole at 3,460 ft. It was brought in flowing through open line and was equipped with an 8⅝-in. water string cemented at 2,900 ft. and 543 ft. of gravel-packed 5-in. liner landed at 3,460 ft. and carrying perforations at 3,117-3,460 ft. The liner was cemented through perforations at 3,117 ft. and the 3,446 ft. of 2½-in. tubing had a packer at 2,917 ft. Dumm Brothers Petroleum Corp. completed No. 4 Harbor and it was tentatively gaged at 100 bbl. per day. Bottom of the hole is 3,210 ft., and the water Shutoff was made with an 8⅝-in. string cemented at 3,115 ft. The Los Angeles Harbor Commission approved a lease with Superior Oil Co. whereby the latter will have the right to drill 30 wells on Mormon Island in the Wilmington district of Los Angeles Basin. The land involved embraces the area southwest of the Catalina terminal. If the initial well fails to show commercial production the lease may be quitclaimed.

Montebello

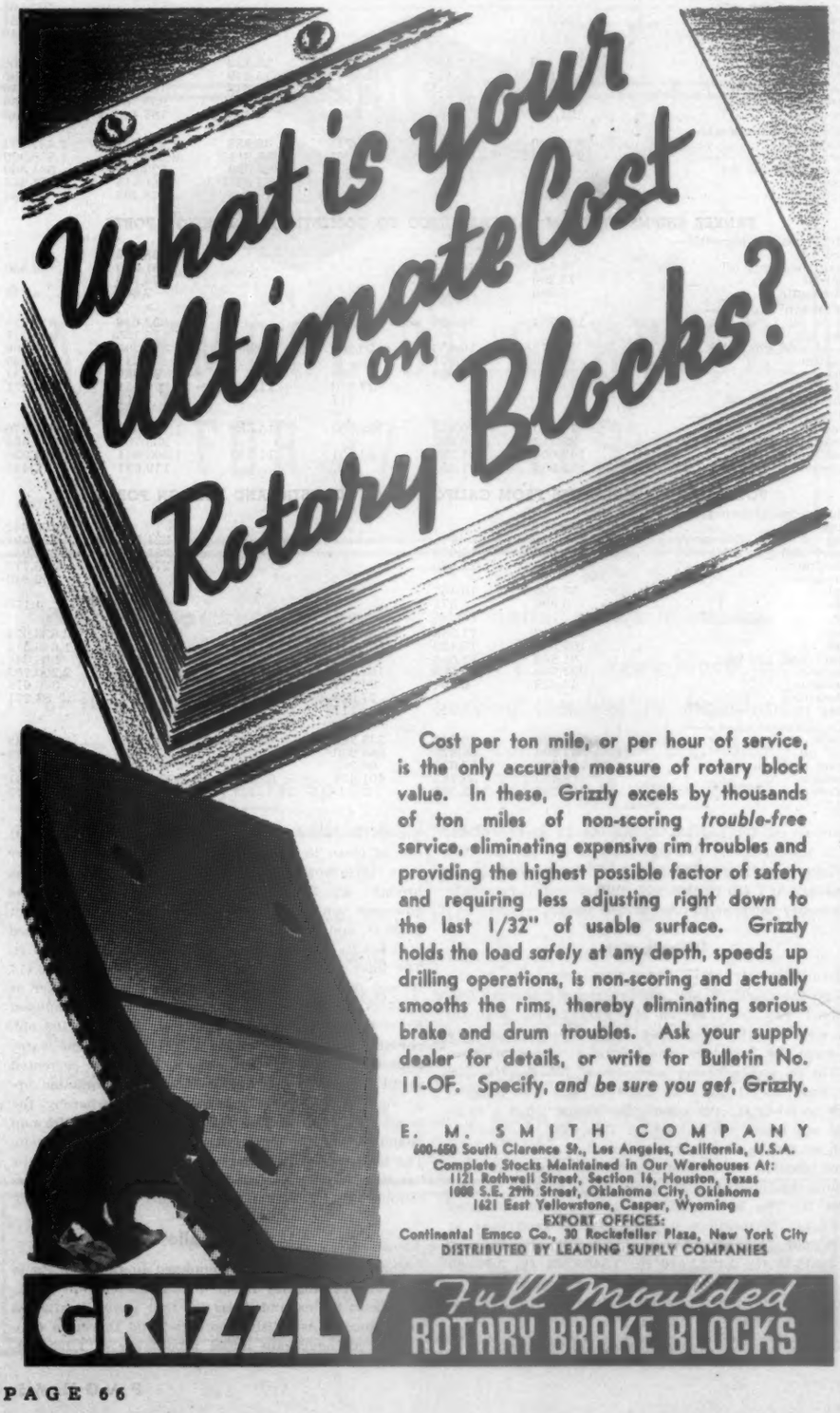
Three new wells were completed in the Montebello field of Los Angeles Basin during the current week, but due to the expanded gas cap they were not allowed to produce to establish a potential and therefore only showed an aggregate initial production of 1,252 bbl.

Out in the extreme west end of the Montebello extension structure, Texas Co. completed its third well on the Wilcox lease when No. 2 Wilcox was brought in flowing 570 bbl. of 35.1-gravity oil and 3,000,000 cu. ft. of gas per day through open line from the La Merced zone, with bottom of the hole at 7,777 ft. This well which was originally drilled as a straight hole to 7,740 ft. and found salt water in the La Merced zone was whipstocked to the southeast. The hole was finished with a 7-in. water string cemented at 7,611 ft. and 182 ft. of 5½-in. liner landed at 7,775 ft. and carrying 80-mesh perforations at 7,610-7,775 ft. and 7,767 ft. of 2½-in. tubing.

Union Oil Co. completed No. 9 Howard & Smith flowing 360 bbl. of 35.1-gravity oil and 2,100,000 cu. ft. of gas per day from La Merced zone with bottom of the hole at 7,645 ft. This new producer was completed after being whipstocked from the surface location in order that production might be developed beneath a hot house and costly shrubbery on the Howard & Smith nursery. Due to its location the well has plenty of drainage area as no well can be drilled within several hundred feet of its bottom under present conditions. No. 9 Howard & Smith was finished with a 7-in. water string cemented at 7,399 ft. and 320 ft. of 5½-in. liner including 119 ft. of perforated. The liner was landed at 7,643 ft. and cemented through perforations at 7,515 ft.

Columbia Oil Co. completed its first producing well in the Montebello extension early this week when No. 1 Scheinik was brought in flowing 322 bbl. of clean 35.2-gravity oil and 2,000,000 cu. ft. of gas daily from the La Merced zone with bottom of the hole at 7,656 ft. It was finished flowing through a 50/64-in. bean and showed a tubing pressure of 550 lb. and a casing pressure of 900 lb. The hole was completed with a 7-in. water string cemented at 7,448 ft. and 233 ft. of 5-in. liner which was landed on bottom and cemented through perforations at 7,570 ft. Surface-made perforations were 140-mesh and placed at 7,570-7,656 ft. and after the liner had been cemented gun perforations were made at 7,462-7,550 ft. opposite the top member of the La Merced zone. The top 50 ft. of this steel liner consisted of drillable material which indicates that this well may be carried down into the deeper virgin zone at a later date.

It is customary to use a limited amount of drillable liner on top of steel liners in this field as it is believed that this will increase recovery of liners when it is desired to drill ahead.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Kettleman North Dome

In about the center of the Kettleman North Dome field, Standard Oil Co. completed No. 61-17-Q on fee-owned acreage in Section 17-22-18 flowing 1,245 bbl. of 33.5-gravity oil and 550,000 cu. ft. of gas per day from the Temblor with bottom of the hole at 8,485 ft. This new well was brought in flowing through a 45/64-in. bean and showed a tubing pressure of 350 lb. and a casing pressure of 950 lb. The hole was finished with 11¾-in. casing set at 5,813 ft., 8⅝-in. casing set as a water string at 7,513 ft. and 1,005 ft. of 6⅝-in. liner landed at 8,480 ft. and cemented through perforations at 7,927 ft., 8,130 ft. and 8,380 ft. Perforations opposite the oil sand were spaced at 7,553-7,707 ft., 7,927-8,081 ft., 8,130-69 ft. and at 8,380-8,480 ft. Within the next few days, Kenda is scheduled to complete No. 25-16 Q in Section 16-22-18 as drilling operations have been concluded at 7,800 ft. and 851 ft. of 6⅝-in. liner landed at 7,795 ft. Kenda has two drilling wells in Section 18-21-17 in the Huffman area in the western end of the Kettleman structure that are headed down into the Eocene and one of these wells, No. 27-18-J, should reach the pay within another 10 days as it is already down 10,700 ft. Standard Oil Co. has been experiencing considerable difficulty with No. 72-18-J in Section 19-21-17 which well is scheduled for completion in the Eocene as with bottom of the hole at 10,903 ft. and redrilled to 10,812 ft. the company is faced with a fishing job for lost drill pipe. Next week, Standard will make plans to complete No. 72-17-Q in the Temblor as drilling has been concluded at 8,690 ft. and 1,326 ft. of 5¾-in. liner landed at 8,685 ft. Union Oil Co. which several weeks ago erected derrick for No. 9 King, a projected Eocene well, has started rigging up rotary preparatory to an early spud.

San Joaquin Basin

Tide Water Associated Oil Co. completed another well in the Strand field of Kern County, No. 26-7-E Kern County Land in Section 7-30-26, flowing 580 bbl. of 33.5-gravity oil cutting 3.4 per cent and 1,500,000 cu. ft. of gas per day from the equivalent of the Stevens zone with bottom of the hole at 8,340 ft. This well, which was brought in flowing through two 1-in. beans until it built up, was finished with a 7-in. water string cemented at 8,287 ft. and 90 ft. of 5-in. liner landed at 8,337 ft. and carrying perforations at 8,277-8,337 ft., and 8,231 ft. of 3-in. tubing. Top of the upper Stevens sand was cored at 8,212-66 ft. but it showed water. Top of the second Stevens sand was cored at 8,287 ft.

In the Edison field of Kern County, El Tejon Oil & Refining Co. completed No. 2 Douglas in Section 32-29-29 pumping 150 bbl. of 16.2-gravity oil cutting 4 per cent. It was carried down to 4,283 ft., but was plugged back to 4,002 ft. before completion. The hole was finished with a 7-in. water string cemented at 3,910 ft. and 103 ft. of 5-in. liner landed at 4,002 ft. and carrying 120-mesh perforations at 3,920-4,002 ft. and 3,784 ft. of 2½-in. tubing.

Shell Oil Co., Inc., had reached a depth of 10,009 ft. in No. 81-17-B Kern County Land in the Cole's Levee field of Kern County, but this outpost appears to be running considerably lower structurally than other wells in the field. This outpost is in Section 17-31-25, in the southwestern end of the field. In the Tupman section of the Cole's Levee field, Richfield Oil Corp. is rotating ahead in No. 72-33 in Section 33-30-25 in the Stevens oil sand at 9,037 ft. having logged top of the pay at 8,890 ft. Union Oil Co. and Superior Oil Co. are each running a string of tools in the Rio Bravo field but both are making preparations to spud in another well with the possibility that the latter company may start two wells. Shell Oil Co., Inc., has been working at a reduced rate in the Ten Section field during the past several months and at present has two strings of tools working. A new derrick for No. 38-21-B Kern County Land has been erected in Section 21-30-26 and it may be possible that it will be spudded in prior to completion of the two wells now under way.

Coastal District

Tide Water Associated Oil Co. completed another

excellent flowing well in the Ventura Avenue field of Ventura County when No. 122 Lloyd was finished doing 1,452 bbl. of 26.9-gravity oil and 1,608,000 cu. ft. of gas per day from the 57 zone with bottom of the hole at 9,465 ft. This well, which has an elevation of 549 ft. above sea level, was finished with 11¾-in. casing cemented at 5,740 ft. and a 7-in. water string cemented at 8,825 ft. and 692 ft. of 5-in. liner landed at 9,463 ft. and carrying perforations at 8,839-9,463 ft. and 8,732 ft. of 3-in. tubing. Production was through a 3-in. bean until it got under way. The well had not cleaned up at last report but is expected to be practically clean when finally completed. Chansior Canfield Midway Oil Co. has staked location for two additional wells to be drilled in the Rincon field which is located at the extreme western end of the Ventura Avenue anticline just east of the point where it plunges beneath the Pacific Ocean, and has completed derrick for No. 31-B Hobson. This company is at present running three strings of tools in the Rincon field and while the new locations indicate an intention to continue to prosecute drilling it is quite probable that work will not be started until the wells now drilling have been completed.

In the Santa Maria Valley field Union Oil Co. has been forced because of lease obligations to spud in No. 4 Le Roy in Section 13-10-35 and the well should be ready for a production test late in February or early in March.

Up in the Goleta district of Santa Barbara County W. C. Hamilton has cored the Miley oil sand in No. 1 Hollister at 1,342 ft. and preparations are under way to set a string of casing. Oil sand is known to exist beneath the property undergoing development and the only thing that remains to be seen is whether sustained production can be developed. It will be recalled that E. J. Miley drilled in this area several years ago but the wells which produced an extremely high-gravity oil suddenly went to water. Since that time, tools have been developed to scrape large cavities around the liner, and cementing has become more accurate and selective, and for this reason it may be possible that Mr. Hamilton may succeed in developing commercial production.

Indiana Fields

(Continued from Page 64)

In Posey County Roberts Brothers' No. 4 Keck, SW NE NW Section 34-3s-14w, was drilling at 148 ft.

In Newton County Vaughn & Smith had casing on the ground for No. 1 Yacuk, SW SE SE Section 33-32-8w.

In Jay County Petroleum Development Corp.'s No. 1 Binegar, NE NE NW Section 29-24n-13e, had Trenton lime top at 1,034 ft., and a 50,000-cu. ft. gas production, and was drilling at 1,060 ft.

In Randolph County C. Godwin was drilling below 1,100 ft. in C NE NE Section 8-21n-12e.

In Madison County Anderson's No. 1 Coy, NE NE SW Section 1-19n-6e, was shut down for orders at total depth of 1,541 ft.

In Vigo County Siosi's No. 1 Strain, C E½ SE NW Section 16-10n-10w, was drilling below 1,665 ft.

In Sullivan County Salem Oil Co.'s No. 1 Woodward, NW NW NW Section 7-8n-9w, was drilling at 1,625 ft.

In Ripley County Stoll Refining Co. had a hole full of water in sand at 1,411-16 ft. in its No. 1 Franks, NW cor. SW NE NW Section 14-7n-11e, and was drilling at 1,598 ft.

In Martin County Harrison Development Co.'s No. 1 Lewis, NW cor. SE¼ Section 27-5n-3w, was drilling below 1,150 ft. Norris & Gilmore were drilling at 145 ft. in No. 1 Thorp, SE cor. Section 26-3n-4w.

In Knox County Hart & Williams' No. 1 Montgomery, C NE SW Section 28-5n-7w, had a showing of gas at 2,140 ft., topped Devonian lime at 2,255 ft. and was drilling at 2,340 ft., with no oil showing. Sun Oil Co. was drilling at 860 ft. in No. 1 Utt, NW NW SE Donation 182, Township 4n-9w.

In Pike County Newton Pipe Line Co.'s No. 1 Crow, C NE NE Section 24-1n-9w, set 8¼-in. pipe on top of Glen Dean sand at 1,062 ft., and drilling ahead.

In Dubois County Damron Brothers had a showing of oil at 637-42 ft. in No. 4 Humbert, C N½ SW SW Section 25-1s-4w, but was shut down until roads dry.

In Gibson County J. W. Chamberlain's No. 1 Shawhan, Donation 121, Township 1s-10w, was drilling at 320 ft. Sloss & Walls' No. 1 Oakland City College, NW NE SE Section 13-2s-9w, was drilling at 1,100 ft.; Midwest Development Co.'s No. 1 Brock, SE SW SE Section 10-2s-9w, drilling at 950 ft.; Continental Oil Co.'s No. 1 Kleiderer, NW SE NW Section 26-3s-14w, total depth 3,001 ft., plugged back to 2,778 ft. and shot with 40 qt. in sand at 2,762-78 ft. It was shut down because of bad roads.

In Posey County Somers & Egan's No. 2 Keck, SE NW NE Section 34-3s-14w, total depth 2,910 ft., was plugged back to 2,568 ft. and shot with 40 qt. at 2,555-66 ft. and with 15 qt. at 2,508-28 ft. The crew was cleaning out. Roberts Brothers' No. 3 Keck, C E½ NW NW Section 34-3s-14w, was shot with 20 qt. at 2,784-99 ft. and was being cleaned out. J. E. Crosbie, Inc.'s No. 5 Keck, SW cor. NE¼ Section 34-3s-14w, was shot with 4 qt. at 2,151-56 ft. and with 15 qt. at 2,185-2,201 ft., the hole filled 1,300 ft. with salt water, showing a scum of oil. The operation was shut down for orders. O. F. Kelley and others' No. 1 Hahn, SE SW NW Section 1-7s-12w, was being rigged up.

In Gibson County Fotiades and others' No. 1 Yates, C E½ W½ NE Section 29-3s-12w, set 10-in. casing at 100 ft. A. L. Braden and others were at a total depth of 2,433 ft. in No. 1 Simpson, SW cor. NW SE NE Section 19-3s-11w, with 6-in. casing stuck 15 ft. off bottom. Continental Oil Co.'s No. 5 Keck, SE SE SW Section 27-3s-14w, topped Aux Vases sand at 2,784 ft. and had oil from 2,785-97 ft. Casing, 5½ in., was set at 2,781 ft. and the crew was waiting for cement to set.

In Vanderburg County John Knapp and others were drilling at 500 ft. in No. 1 Nagle, NW NW SE Section 8-8s-11w.

In Spencer County Sturboise and others' No. 1 Boyd, C NE NE Section 31-7s-6w, had a gas sand at 915-18 ft. and oil at 922-30 ft., total depth. The well flowed 45 bbl. of badly cut oil in 24 hours. Tubing with packer will be installed for a production test. Snell and others' No. 1 Crowder, NW cor. SW NW Section 7-7s-7w, was drilling at 1,025 ft. with the hole caving badly. Snell and others' No. 1 Biggerstaff, SW SW SE Section 6-7s-7w, total depth 1,061 ft., was shot with 10 qt. at 1,051-56 ft. It pumped 100 bbl. of oil and 300 bbl. of water in a week. It was shut down for lack of storage.

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Kansas Developments

By
DAL DALRYMPLE

Open New Sedgwick Oil Area; Several Wildcat Tests Started

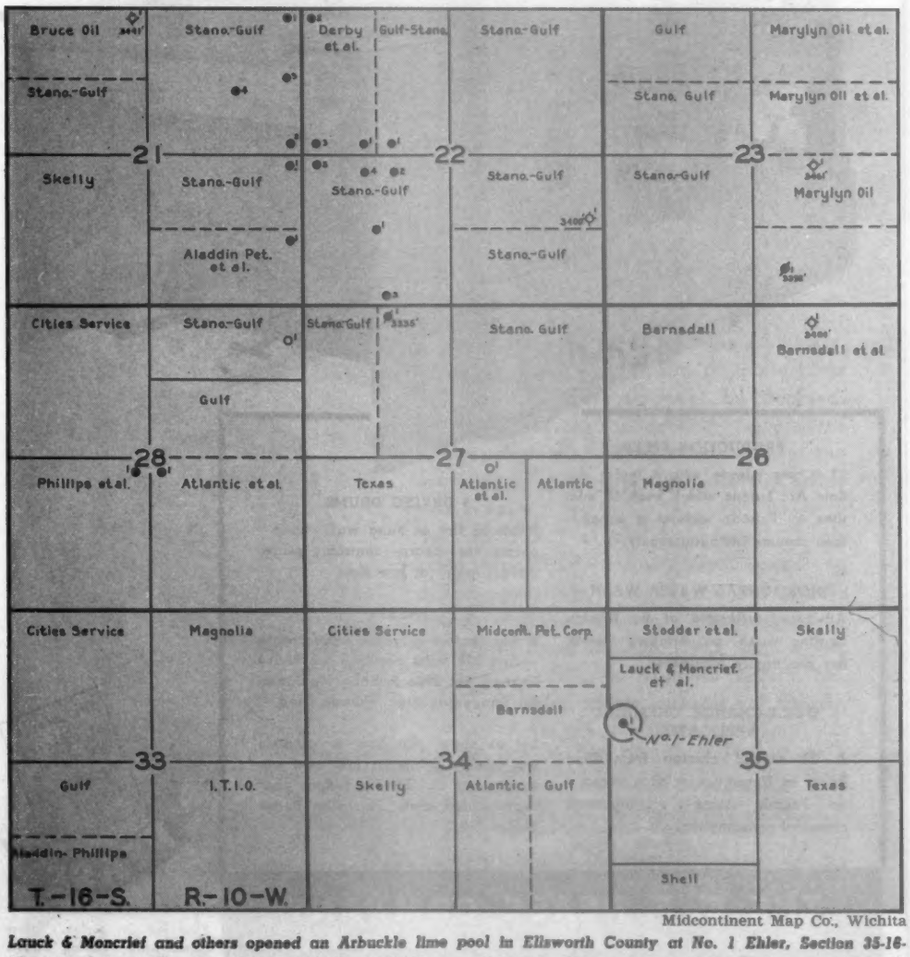
Field activity in Kansas continued to increase the past week, with several wildcats and extension wells being included among the new operations. A pool opener was completed in Ellsworth, a Sedgwick County wildcat gave promise of opening a new area, and a new pay zone was uncovered in the Beaumont area, Greenwood County.

G. A. Fuller and others' No. 1 Stitt, C S½ SE NE Section 21-27-1w, Sedgwick County wildcat 2 miles west of Wichita, was estimated good for 75 bbl. of oil naturally in 24 hours. It topped Lansing lime at 2,655 ft. and had showings of oil at 2,678-82 ft., 2,765-70 ft., and the best showings at 2,797 ft., where one-half bailer of 35-gravity oil and no water was brought up every time the bailer was run. Eight-inch casing was to be set preparatory to testing. Nearest production is in the Valley Center pool, 8 miles northeastward.

Beaumont Oil Co.'s No. 1 Hendrickson, NW NW SE Section 25-27-8e, in the Beaumont area, southwestern Greenwood County, was estimated good for 40 to 50 bbl. of oil daily at total depth of 2,744 ft. in lime. The pay formation is below the Mississippi horizon, but operators had not determined if it was Hunton or Viola. Other production in the area is from Peru sand at around 1,800 ft. The new well is ¼ mile from the shallower wells.

The Ellsworth County discovery well, Lauck & Moncrief's No. 1 Ehler, Section 35-16-10w, was a completion of the past week.

New operations included the following outposts: Hartford Oil Co.'s No. 1 Morris, SE SE NE Section 28-25-31w, wildcat on a 9,000-acre block southeast of Garden City in Finney County, a location; Carter Oil Co.'s No. 1 Richardson, SW cor. Section 11-33-5, about 4 miles southeast of Frog Hollow pool, Cowley County, a stratigraphic core-drill test; R. Hess and others' No. 1 Kincaide, SW NW NW Section 30-5s-17w, about 2 miles southeast of the Bow Creek pool, Phillips County, location; Champlin Refining Co.'s No. 1 Smith, NE NE SE Section 17-21-11w, ¼ mile northwest of South Snider pool, Stafford County, drilling below 1,050 ft.; Gulf Oil Corp.'s No. 1 Mehl, Section 18-17-9w, ¾ mile northwest of the Schroeder pool, Ellsworth County, derrick; Frankfort Drilling Co.'s No. 1 Shearer, NW cor. Section 29-4-9e, Marshall County wildcat, cleaned out to 822 ft. and preparing to drill ahead; Magnolia Petroleum Co.'s No. 1 Beck, CWL NW NW Section 12-27-13w, ½ mile east of the Iuka pool, Pratt County, location; W. M. McKnabb's No. 1 Sherwood, NE SE SW Section 4-35-5, Cowley County wildcat, location; E. B. Shawver's No. 1 Davis, NE NW NE Section 21-30-4, wildcat in Cowley County, derrick; C. L. Carlock and others' No. 1 Starkey, CSL SE SE Section 21-30-7, Cowley County wildcat, machine; Fred Phillips and others No. 1 Jarvis, CNL SW NE Section 19-31-4e, about 1½ miles west of the Hittle pool, Cowley County, location.



Midcontinent Map Co., Wichita

Lauck & Moncrief and others opened an Arbuckle lime pool in Ellsworth County at No. 1 Ehler, Section 35-16-10w. It is about 1¾ miles southeast of the Stoltenberg pool and 2 miles northwest of the Stratman pool. South end of the Stoltenberg pool is shown

Estimated Daily Production

Estimated daily production for Kansas for the week ended March 9, and for the preceding week, was as follows:

	Barrels	
	Mar. 9	Mar. 2
Oxford City	700	750
Burrton	9,000	9,200
Ritz-Canton	4,000	4,150
Graber	2,400	3,000
Hollow-Nikkel	1,500	1,550
Lerado	850	1,400
Voshell	1,550	1,700
Wellington	1,700	1,750
Ellsworth County:		
Lorraine	1,700	1,900
Other pools	1,230	1,585
Rice-Barton counties:		
Bloomer	3,250	4,050
Chase	4,450	5,050
Geneseo	3,350	2,600
Raymond	700	500
Silica	13,600	12,150
Keesling	1,200	500
Wherry	3,400	3,750
Miscellaneous Rice	5,535	8,505
Miscellaneous Barton	6,690	7,085
Trapp district	11,700	12,300
Balance Russell County	14,570	18,650
Sedgwick County	3,100	3,150
Ellis County:		
Bemis	6,200	6,400
Miscellaneous	3,420	4,375
Kingman County	840	1,040
Stafford County	6,050	6,255
Greenwood County	7,750	8,100
El Dorado	7,250	7,550
Other fields	36,815	35,645
Total	163,500	196,900

Wildcat Reports

Cities Service Oil Co.'s No. 1 Victory, C W½ W½ NW Section 36-13-30w, wildcat in Gove County, lost circulation at 5,166 ft. was bottomed in pre-Cambrian formation at 5,161-90 ft., total depth, and was dry and abandoned. Arbuckle lime was found at 4,615 ft.

A. M. Landon and Atlantic Refining Co.'s No. 1 Coen, NW NW NE Section 15-23-14w, Stafford County wildcat, found dry Arbuckle lime at 3,985-4,003 ft., total depth, and was abandoned.

Mid-Plains Oil Co.'s No. 1 Newkirk, C S½ SW SE Section 14-18-7w ,wildcat in Rice County, cable-tool test, topped Arbuckle lime at 3,482 ft., was bottomed at 3,486 ft., water intruded and it was abandoned.

Rex & Morris' No. 1-A Wright, C N½ Lot 16, Section 30-28-8, Butler County wildcat, topped Mississippi lime at 2,778 ft., total depth 2,865 ft., had a hole full of water and was abandoned. It was drilled with cable tools.

Thurow and others' No. 1 Green, C SW¼ Section 25-14-22, wildcat in Johnson County, entered Arbuckle lime at 1,654 ft., had a slight showing of oil at 1,666-67 ft., but was dry and abandoned at 1,698 ft., total depth.

Pryor & Lockhart's No. 1 Southern, C N½ NE NE Section 14-19-10w, Rice County outpost, topped Arbuckle lime at 3,284 ft., had a hole full of water and was abandoned at 3,325 ft., total depth. It was a cable-tool test.

Stafford County

Continental Oil Co.'s No. 2 Mather, C S½ S½ NW Section 12-25-13w, Leesburgh area, Stafford County, was acidized and completed for maximum potential of 3,000 bbl. of 38-gravity oil. Production was from Arbuckle lime at 4,129-44 ft., total depth.

Stanolind Oil & Gas Co.'s No. 3 Hitz, C W½ NE NW Section 2-22-12w, South Sittner pool, found Arbuckle lime at 3,580-87 ft., total depth, was treated with acid,

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pumped 108 bbl. of oil in 3 hours and made potential of 1,600 bbl. daily. Gravity of the oil was 41.6°.

Deep Rock Oil Corp.'s No. 2 Turner, C S½ SE SW Section 2-24-11w, Zenith field, had Viola lime pay at 3,700 ft., total depth 3,765 ft., flowed 40 bbl. of oil an hour, was acidized and made potential of 2,451 bbl. daily. Location is on the north end of the field.

Transwestern Oil Co.'s No. 1 Banker B, C E½ SE SE Section 10-24-11w, found Misener sand at 3,755-3,831 ft., total depth, was acidized and made daily potential of 2,000 bbl. of oil.

Barber County

Pryor & Lockhart's No. 1 Vanderplas, NW NW SE Section 18-31-13w, Lake City area, Barber County, topped Arbuckle lime at 4,604 ft. and was dry and abandoned at 4,620 ft., total depth.

McPherson County

Sunray Oil Co. and Fain Drilling Co.'s No. 4 Briggs, C E½ NW NW Section 29-20-5w, Bornholdt pool, McPherson County, found chat at 3,362-73 ft., total depth, and was completed for 3,000 bbl. maximum daily allowable potential. It made bomb potential of 28,725 bbl. of oil through 1-in. choke, the largest potential rating of any well yet completed in the pool. Seven-inch casing was set at 3,362 ft. Casing pressure at the start of the potential test was 102 lb., and 92 lb. at end of the test; tubing pressure was 145 lb. and 105 lb.

Barton County

Texas Co.'s No. 1 Janssen, C E½ NE SE Section 31-16-11w, was completed to open an Arbuckle lime pool ¾ mile south of the Krier-Basal sand pool in Barton County. It found Arbuckle lime at 3,331-41 ft., total depth, was acidized, pumped 89 bbl. of oil in 8 hours and made potential of 267 bbl.

Gulf Oil Corp.'s No. 1 Dolechek, NW NW SW Section 29-16-11w, Krier pool, had LaMotte, or Basal, sand at 3,307-15 ft., total depth, and was completed for daily potential of 1,633 bbl. of oil.

Derby Oil Co.'s No. 3 State, SE cor. Section 10-20-11w, Silica field, Arkansas River area, found Arbuckle lime at 3,281-88 ft., total depth, was treated with acid and made 24-hour potential of 823 bbl. of 41.6-gravity oil.

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Bodine Drilling Co. and others' No. 1 Herter, C N½ NW SE Section 8-20-11w, Ellinwood district, pumped 55 bbl. of oil in 8 hours after acid treatment and made daily potential of 164 bbl. of 43-gravity oil. Production was from Arbuckle lime at 3,310-21 ft., total depth.

Rice County

Hipple Oil Co.'s No. 1 Rice, NE cor. Section 10-21-6w, Welch pool, Rice County, found chat at 3,365-3,418 ft., total depth, pumped 7 bbl. of oil an hour and was estimated good for 150 bbl. daily.

Skelly Oil Co.'s No. 3 McGuire, C S½ SE NE Section 34-19-10w, Silica field, was completed in Arbuckle lime at 3,304-09 ft., total depth. It was acidized, pumped 318 bbl. of oil in 24 hours, reacidized, it made daily potential of 1,240 bbl. of 45-gravity oil.

Mission Corp.'s No. 9 Habiger, C N½ NW NW Section 5-18-10w, Bloomer field, found Arbuckle lime at 3,215-20 ft., total depth, was acidized, pumped 250 bbl. of oil in 17 hours and was completed for top allowable potential of 3,000 bbl.

H. & M. Drilling Co.'s No. 1 Gemeinhardt, C S½ NE NE Section 28-19-10w, was a recent failure at 3,320 ft., total depth.

Ellis County

Cities Service Oil Co.'s No. 9 Collahan, SW SE NW Section 24-11-17w, Bemis field, Ellis County, was completed for top allowable potential of 3,000 bbl. of oil after acidizing Arbuckle lime found at 3,436 ft., total depth 3,440 ft. Gravity of oil the oil was 33.5°.

Darby Petroleum Corp.'s No. 7 Jorgenson, C N½ SE SW Section 7-11-17w, Burnett area, topped Arbuckle lime at 3,348 ft., total depth 3,354 ft., was acidized and made daily potential of 3,000 bbl. of oil.

Phillips Petroleum Co.'s No. 4 Sites, C N½ SE SW Section 12-11-18w, swabbed 43 bbl. of oil in 2 hours from Arbuckle lime found at 3,349-59 ft., total depth, and was completed for top allowable potential of 3,000 bbl. Gravity of the oil was 33.3° at 74° F.

Skelly Oil Co.'s No. 3 Kempe A, C S½ SE NW Section 12-11-18w, had Arbuckle lime at 3,354-59 ft., total depth, was acidized, pumped 184 bbl. of 32-gravity oil in 8 hours and made daily potential of 1,702 bbl.

Rooks County

Iowa-Kansas Oil Co.'s No. 1 Beardmore, C E½ SE NE Section 10-9-16w, Laton pool, Rooks County, topped Lansing lime at 3,160 ft. and was bottomed at 3,172 ft. After acidizing, it pumped 252 bbl. of 42.3-gravity oil in 8 hours and made 24-hour potential of 756 bbl. It was a cable-tool test.

Russell County

Skelly Oil Co.'s No. 11 Opdycke, C S½ S½ SW Section 29-14-13w, Hall area, Russell County, found Lansing lime at 2,843 ft., had pay at 2,865-89 ft., total depth, was acidized, pumped 167 bbl. of oil in 8 hours and made daily potential of 502 bbl. of oil, with 8 per cent water. Gravity of the oil was 38.3°.

Cities Service Oil Co.'s No. 1 Sutton, SE cor. Section 7-13-14w, North Atherton area, topped Arbuckle lime

(Continued on Page 74)

Forest City Basin

ST. JOSEPH, Mo., Mar. 11.—Muddy roads, impassable at places, kept operations in the Forest City basin almost at a standstill the past week.

George Vincent's No. 1 Dillingham, C NE SW Section 16-53-34w, Platte County, Missouri, was cleaning out after a long shutdown and preparing to drill ahead. That was the only active test in Northwest Missouri.

Nebraska operators were able to do little because of mud. Pawnee Royalty Co. continued to pull casing at its No. 1 Meyer, C NW NW Section 24-1n-15e, west of the Falls City discovery well in Richardson County, leaving a portion of 10-in. pipe in the hole when difficulties arose. It was dry and abandoned at 3,710 ft., total depth.

E. V. Jackson and others' No. 1 Hill, C NW SW Section 32-2n-16e, Richardson County location, was reported abandoned.

Geophysical work in Nebraska was at a standstill because of mud.

In Iowa, Phillips Petroleum Co. ran 8-in. casing to 2,368 ft. to shut off water and stop caving shale and began to drill dry for the first time in weeks. The drill passed 2,429 ft. over the week end. It was expected the hole would be drilled to at least 3,000 ft.

North Louisiana, Arkansas

By GEORGE WEBER

Upper Sand Showing in Well in Miller County, Ark., Field

SHREVEPORT, La., Mar. 11.—The Standard Oil Co. of Louisiana's No. 1 Sturgis, a Miller County, Arkansas, wildcat took the center of attention this week with a showing of oil, presumably in Blossom sand.

Standard Oil Co.'s No. 1 Sturgis, C NW SE Section 1-17-27, midway between the Rodessa and Garland City fields, and about 12 miles southeast of Texarkana, surprised operators this week with a show of oil in what is considered to be the Blossom sand. The test, after setting 9⅝-in. surface pipe at 2,493 ft., topped the sand at 2,900 ft. and drilled into the sand body to a depth of 2,923 ft. before changing to a core drill. The cuttings showed oil, and on coring at 2,923-30 ft. the 7 ft. of recovery showed streaks of sand and shale, with oil in the sand. The mud was conditioned, and a packer set at 2,895 ft. for a drill-stem test. The testing tool, open for 30 minutes, showed recovery of two stands and one joint of mud and 15-gravity oil. The company plans to explore deeper possibilities.

The oil showing in the Blossom, or possibly the Tokio, is important, even though commercial production is not considered feasible at that depth. It shows a good indication of possible production in deeper horizons, particularly the Rodessa member of the lower Glen Rose formation. The well, situated on what is considered a graben, is running 100 ft. high on the top of the Annona chalk, topped at 2,363 ft., and 80 ft. high on the base of the chalk, at 2,515 ft. Elevation is 346 ft.

La Salle Wildcats

The two active wildcats east of Urania, in La Salle Parish, North Louisiana, showed little of interest during the past week. The deep wildcat, H. L. Hunt and Arkansas Fuel Oil Co.'s No. 1 Goodpine Lumber Co., was drilling below 8,570 ft. at the week end, but had no showings. To the southwest, in an offset position, Placid Oil Co.'s No. 9 Louisiana Central Lumber Co. is still awaiting a test after setting 5½-in. casing at 2,396 ft., with the total depth at 2,993 ft. Sand bodies showing oil were encountered at 2,397-2,409 ft., and 2,884-2,903 ft. The operator has been shut down for a week after setting casing for title work, and little information is being released on it.

Two new wildcats were begun in the past week. In Madison Parish, north of Tallulah, Gulf Refining Co. set surface casing in No. 1 Sondheimer, Section 33-18-12e. South Arkansas' newest wildcat, J. M. Hazelwood, Fohs Oil Co. and others' No. 1 L. Miller, Section 33-5s-4w, in Arkansas County near the Mississippi River, is drilling below 900 ft. on a 4,500-ft. core test.

A disappointment in North Louisiana was the abandonment of Harry Hanbury's No. 1 Holston unit, near Arcadia in Bienville Parish. The test was drilled to a total depth of 7,502 ft. without finding oil indications.

Two Magnolia field wells were brought in for good producers, marking the field's second anniversary. The ultimate total number of producers may be 107, with the present total at 97.

Production by Pool

Estimated daily gross production all companies week ended March 8:

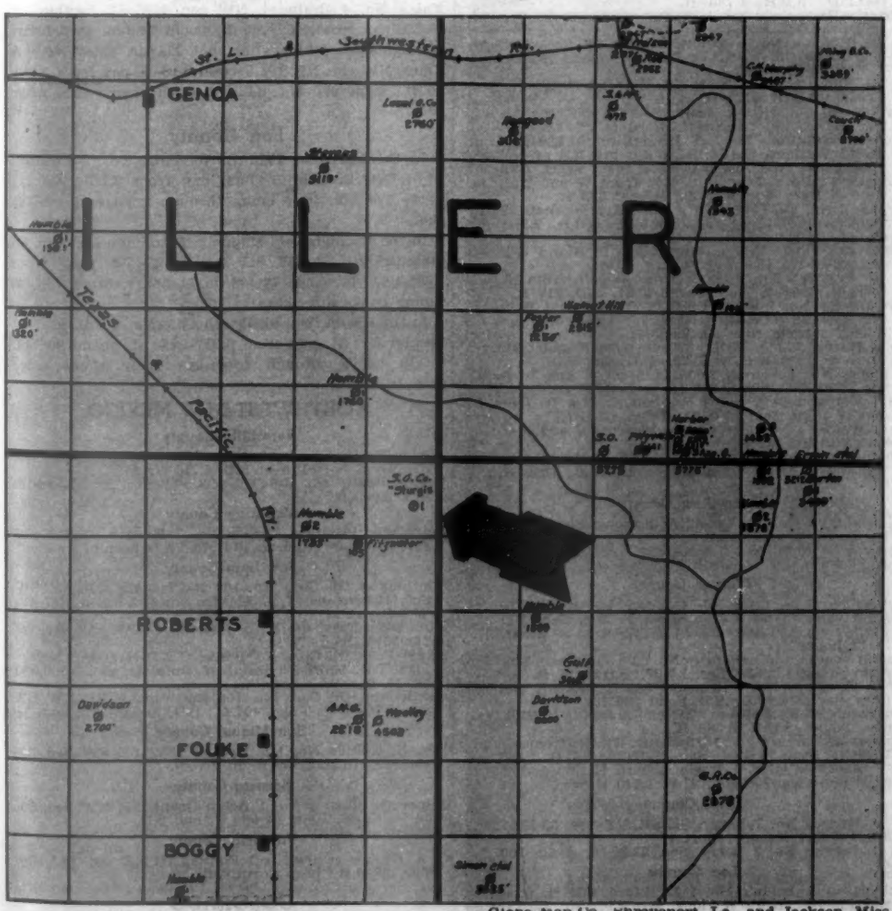
NORTH LOUISIANA

	Barrels
Bellevue	455
Caddo light	5,200
Caddo heavy	2,170
Converse	550
Cotton Valley	*13,840
Cross Lake	5,015
De Soto and Red River	975
Elm Grove	300
Haynesville	2,640
Holly	70
Homer	2,740
Lisbon	5,270
Pleasant Hill	90
Rodessa	21,270
Sarepta-Carterville	†285
Sligo	1,670
Sugar Creek	685
Urania	2,290
Zwolle	2,040
Total North Louisiana	67,555

SOUTH ARKANSAS

Atlanta	760
Big Creek	Shut in
Buckner	1,925
Champagnolie	1,240
Dorcheat	1,930
El Dorado	1,635
Lewisville	700
Lisbon	215
Magnolia	19,860
Miller County	225
Nevada	570
Nick Springs	‡180
Rodessa	2,110
Schuler	18,510
Smackover light	1,730
Smackover heavy	13,640
Stephens	525
Troy	1,340
Urbana	920
Village	1,240
Total South Arkansas	69,255

*3,275 bbl. is distillate. †90 bbl. is distillate.
‡Delta Drilling Co.'s No. 1 Grace, Sec. 31-17s-14w, Union County, producing from Travis Peak, gravity 39.5°
Texas side of Rodessa, 23,160 bbl.



Globe Map Co., Shreveport, La., and Jackson, Miss.

Standard Oil Co. of Louisiana's No. 1 Sturgis, Miller County, Arkansas, wildcat near Fouke found oil in the shallow Blossom sand at 2,900-30 ft.

NORTH LOUISIANA COMPLETIONS

Wildcat—Bienville Parish

Harry Hanbury and others' No. 1 Holston unit, NE cor. SW NE Section 29-18-5, total depth 7,502 ft., dry and abandoned; had a showing of gas.

Sligo—Bossier Parish

Union Producing Co.'s No. 1-B Thigpen & Herold, 1,275 ft. south and 1,279 ft. east of NW cor. Section 19-17-11, total depth 5,210 ft., junked and abandoned.

Caddo—Caddo Parish

Burnham Drilling Co. and others' No. 5 Wilkinson, Section 33-22-16, set 7-in. casing at 2,770 ft., total depth 2,470 ft., pumping 25 bbl. Roger Harris' No. 1 L. Evans, Section 11-20-16, total depth 1,525 ft., acidized with 3,000 gal., pumping 25 bbl. E. A. Stiller and others' No. 1 Stiles, Section 28-21-16, flowing 144 bbl. through open tubing; casing pressure 240 lb., total depth 2,333 ft. H. J. Strief's No. 1 Noel estate, Section 12-28-16, pumping 27 bbl., total depth 2,543 ft. Texas Co.'s No. 2 Atkins fee, Section 7-20-15, pumping 125 bbl. of oil and 300 bbl. of salt water after it was acidized with 4,000 gal., total depth 1,536 ft. Texas Co.'s No. 20-B Noel, Section 14-21-15, total depth 1,667 ft.,

(Continued on Page 75)

Rocky Mountain Area

By T. R. INGRAM

Leo Sand Yields Good Well in Lance Creek, Wyo., Field

DENVER, Colo., Mar. 11.—The Canadian River Gas Co. and the Colorado Interstate Gas Co. were denied a review at this time of their allegations that the Federal Power Commission lacked jurisdiction over their rates for gas brought to Colorado and Wyoming from Texas, in a decision handed down by the U. S. Circuit Court of Appeals at Denver. The ruling was on a motion for dismissal filed by the power commission.

Only two wells were completed in the northern Rocky Mountain area in the past week in review. One of these was the Argo Oil Co.'s No. 8 Ford, in the Lance Creek field, which made 1,680 bbl. from the Leo sand and marked a small extension of that horizon on the north side of the field. The other was A. B. Cobb's No. 1 Churl, a wildcat in North Cut Bank, Montana, which showed for a small well in the Sunburst, but had water in the Cut Bank.

New operations include a wildcat in Larimer County, Colorado, three locations in Lance Creek, two in Cut Bank, and one in Kevin-Sunburst.

Cancellation of prospecting permits on federal land on which all rights expired December 31, 1938, and December 31, 1939, has begun, and registers of district land offices in public-land states have been notified from Washington of the procedure. While all rights under the permits expired on the two dates named above, actual cancellation is not effected until the permittee receives notification from Washington. The land then becomes subject to leasing for oil and gas and applicants have 15 days in which to file applications for leases. If there are more than one application on any given tract, provisions are made for the holding of a lottery to determine to whom the lease is to be given.

Cancellation of permits will be made in groups in order not to overload the agencies through which they are handled. The first cancellations in Colorado are scheduled for March 25.

The register of the district land office at Denver has been notified that 48 permits will be cancelled on that date. Approximately the same number will be cancelled in the Pueblo office, and similar procedure will be followed in district offices in other public-land states. Altogether there will be between 300 and 400 permits cancelled through the Denver office in groups at varying dates, and approximately the same number through the Pueblo office. The land to be thrown open for leasing consists of 1,539,100 acres in 13 states and composed of tracts formerly held under permits for which the holders have failed to exchange permits for 5-year leases as required to continue their rights to prospect the land. By July 1, the land to be opened for leasing is expected to aggregate 3,800,000 acres.

Areas in the Rocky Mountain states thrown open at this time are as follows: Colorado, 156,000 acres; Wyoming, 277,000 acres; Montana, 120,000 acres; New Mexico, 195,000 acres; Utah, 150,000 acres; North Dakota, 9,600 acres; South Dakota, 18,000 acres.

NEW MEXICO

This greatest increase in field activity in several months was registered in Southeast New Mexico the past week as 21 new locations were made in Lea and Eddy counties. Of the total, 17 were in Lea County and the remaining four were in Eddy County and in the recently opened Anderson area north of the Artesia field and south of the High Lonesome field.

Completions remained about the same for the entire area, there having been 11 new oil wells finished in the two counties. Eddy County registered seven completions, all in the Loco Hills field. Lea County's new wells were one each in the Maljamar, Vacuum and Hardy fields.

Included in Eddy County's four new locations was an outpost 2 miles northwest of the new producing area opened last week by M. T. Anderson's No. 1 Root, extreme SW cor. Section 12-17-29, about a mile north of production in the Artesia field. The new well was completed for 90 bbl. of oil in 21 hours and a north offset was immediately staked by the discovery operator as well as an east offset by C. L. East. During the past week a west offset and a diagonal southwest offset were both staked as well as the 2-mile northwest extension test.

The northwest outpost location was made by J. B. Cowden as No. 1 State, SW SE Section 3-17-29. Offsetting No. 1 Root to the west is the new location by George D. Key, No. 1 Key, SE SE Section 11-17-29. The diagonal southwest offset was made by Barnsdall Oil Co., No. 1-B Dodd, NE NE Section 14-17-29. The fourth location was south of No. 1 Root, discovery well, and on the north edge of the Artesia field proper. It was Grayburg Oil Co.'s No. 5-A Keely, NE cor. NE SE Section 24-17-29.

Eddy County

G. R. Burke's No. 1 State, SE cor. SE SW Sec. 36-16-24. (O.W.D.D.) S.D. 2,550 ft.
G. E. Bobb's No. 1 Vandagriff, SW NE Sec. 6-19-31. (O.W.D.D.)
Everts' No. 1 Greer, SE cor. Sec. 31-16-31. C.O. 3,650 ft.; 700 ft. O.I.H.; T.D. 3,854 ft.
Everts & Moran's No. 1 Ranuz, NE NW Sec. 18-23-26. T.D. 375 ft.; S.D.
G. A. Grober's No. 1 Wright, 1,980 ft. from N and W lines, Sec. 25-18-28. Tstg. S.O.&G. 1,382 ft.; est. 10 B.O.P.D.; S.D.R. 1,735 ft.
Artesia Drlg. Co.'s No. 1 Hoffman, SE SE SE Sec. 14-17-24. W.O.C. 860 ft.
L. E. Elliott's No. 1 Elliott, SE SE SE Sec. 24-18-29. S.S.O. 3,255-75 ft.; S.D.O. 3,482 ft.; made 1 B.O. and 4 B.W. in 24 hrs.
J. W. Elliott's No. 1 Cannon (O.W.D.D.), C SW SE Sec. 4-19-30. S.D.O. 3,421 ft.; sulf. wtr.
Trojan Oil Co.'s No. 1 Grant, SW SW NE Sec. 33-20s-28e. S.O. 1,530 ft.; S.D.R. 1,580 ft.
Dodson Drlg. Co.'s No. 1 A. H. McElreath, 330 ft. from S and W lines, Sec. 3-16-29, 2½ mi. NE of Nolen's pool opener. Est. 175,000 cu. ft. gas; S.D.O. 2,750 ft.
Anderson's No. 1 Neeson, 330 ft. from W and 2,310 ft. from N lines, Sec. 4-16-30. Drlg. 2,625 ft.
Carper Drlg. Co.-Tallmadge's No. 2-A Miles-State, 2,310 ft. N and E lines, Sec. 32-17-30. S.D.R. 2,882 ft.; oil sd. 2,864-92 ft.
Clark & Cooper's No. 1 Gates, 1,980 ft. S and E lines, Sec. 20-16-27. Drlg. 1,650 ft.
A. E. Frazier's No. 1 H. E. Yates, 330 ft. from N and 1,650 ft. from E lines, Sec. 6-20-27. S.D. 817 ft.
Frederick's No. 1 Reed, 1,980 ft. from S and W lines, Sec. 28-24-38 (O.W.D.D.). Est. 1,500,000 cu. ft. gas at 2,300 ft.; prep. run csg. 2,893 ft.
Jack Harris' No. 1 Josey, 370 ft. from S and 2,310 ft. from W lines, Sec. 20-20-23. R.U. and S.D.
Wilder's No. 1 Young, 1,650 ft. from N and W lines, Sec. 23-16-29. Drlg. 2,630 ft.; S.G. 1,805 ft.
Sam Montgomery's No. 1 Kaltenback, 330 ft. from N and W lines, Sec. 24-16-27. Drlg. 1,915 ft.
Sam Weiner's No. 1 Hess, 330 ft. from S and E lines, Sec. 9-16-29. S.D.R. 1,925 ft.
Thomas & Bowers' No. 1 H. W. Etz, 2,310 ft. from N and 330 ft. from W lines, Sec. 13-16-30. Drlg. 2,570 ft.

Dona Ana County

Picacho O. & G. Co.'s No. 12 Armstrong, Sec. 15-23s-1w. Prep. run Csg. 2,620 ft.
Slack & Mahres' No. 1 Simmons, Sec. 35-22s-5e. T.D. 2,785 ft.; S.D.O.

Chaves County

Comanche Drlg. Co.'s No. 4 Sloop & Purcell, 510 ft. from N line and 330 ft. from E line, Sec. 5-11-26. Prep. treat 150 gal. 1,268-74 ft.; S.S.O.; 90 ft. O.I.H. in 12 hours.
Farrar-Jones-Cunningham's No. 1 Samples, 330 ft. from S and E lines, Sec. 1-7-27. S.D.R. 98 ft.
G. H. Cowden's No. 1 Brunson, 330 ft. from N and W lines, Sec. 27-9s-30e. S.D. bond 225 ft.
Grastorff-Caudill & French's No. 1-A Smith (O.W.D.D.), Sec. 1-4-29. S.D.R. 3,686 ft.
Helmes & Martin's No. 1 Stephens, 660 ft. from N and 1,980 ft. from E lines, Sec. 22-15-29. S.D.O. 1,835 ft.
T. S. Stanfield's No. 1 Bogle, 330 ft. N line and 2,310 ft. E line, Sec. 27-13-25. U.R. 1,140 ft.

Luna County

O. D. Berry's No. 1 Berry, SE SE SW Sec. 33-22s-10w. S.D.O. 1,000 ft.; no report.
O. D. Berry's No. 2 Berry, Sec. 33-22-10. Drlg. 100 ft.

Lea County

Culbertson & Irwin's No. 1 Lankford, 660 ft. from N and 1,980 ft. from W lines, Sec. 25-23-36. Gas from 2,955-3,007 ft.; increased to 75,000,000 cu. ft. per day at 3,030 ft.; T.D. 3,618 ft.; P.B. 2,970 ft.; S.I. at P.B. depth 2,970 ft
J. D. Barefield's No. 2 Stroup, 1,980 ft. from N and E lines, Sec. 12-18-32. S.D.; new engine; 1,480 ft.
Stogner & Weiner's No. 1 State, SE SE Sec. 30-12-32. R.U. spudder.

Otero County

Ernest's No. 1 Ernest, Sec. 20-25-7. S.D.R. 2,740 ft.
Otero Oil Co.'s No. 1 State, SE NW Sec. 5-22-10. C.O. 560 ft.; T.D. 825 ft.

Socorro County

Joiner Oil Corp.'s No. 1 Belen grant, 2,310 ft. N and W lines, Sec. 16-3-1. S.D. 600 ft.

SOUTHEAST NEW MEXICO COMPLETIONS

Eddy County

In the Loco Hills field Continental Oil Co.'s No. 3-M-2 State, SW cor. NE SE Section 2-18-29, pay from 2,654-71 ft., 457 bbl. in 12 hours through open tubing after shot. Continental Oil Co. and S. P. Yates' No. 1 Brainard, SW cor. NW SE Section 3-18-29, pay from 2,592-2,606 ft., made 91 bbl. in 5 hours through ¾-in. tubing choke. Me-Tex Supply Co.'s No. 4 Yates, C NE SW Section 5-18-29, temporarily abandoned at 2,590 ft. G. M. Cone's No. 2 Guy, NE NE SE Section 9-18-29, pay from 2,525-39 ft., made 90 bbl. in 3 hours through ¾-in. choke after shot. G. M. Cone's No. 3 Guy, NE SE SE Section 9-18-29, pay from 2,528-47 ft., made 210 bbl. in 6 hours through ¾-in. choke after shot. Flynn, Welch & Yates' No. 2 Langford, SE cor. SE NW Section 9-18-29, pay from 2,456-97 ft., made 425 bbl. daily through open tubing after shot. R. W. Fair's No. 4 Brainard, NW cor. NW SE Section 10-18-29, pay from 2,573-86 ft., made 72 bbl. in 2 hours through open tubing after shot. Martin Yates' No. 4-A Yates, NW cor. NE SW Section 6-18-30, pay from 2,816-50 ft., made 480 bbl. daily through open casing after shot.

Lea County

In the Maljamar field R. W. Fair's No. 2-B Baish, C SE NE Section 27-17-32, pay from 3,785-3,953 ft., made 120 bbl. in 4 hours through open casing after shot.

In the Vacuum field Magnolia Petroleum Co.'s No. 55 State-Bridges, C SW SE Section 23-17-34, pay from 4,550-4,825 ft., made 77 bbl. in 11 hours through ½-in. tubing choke after shot.

In the Hardy field Skelly Oil Co.'s No. 4 Hill, SE NW Section 6-21-37, pay from 3,657-3,743 ft., made 96 bbl. in 19 hours through 18/64-in. tubing choke after shot.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc.'s No. 2 North Albuquerque, NE SE NW Sec. 19-11n-4e. S.D. 4,710 ft.
Norins Realty Co., Inc.'s No. 2 Pajarito, Sec. 22-9n-1e. S.D. 2,000 ft.

McKinley County

Petroleum Products Corp.'s No. 7 Hospah, C SW SW Sec. 36-18n-9w. Spd. to 50 ft. and S.D. acct. of weather.

San Juan County

Continental Oil Co.'s No. 104 Rattlesnake, NE SE SW Sec. 12-29n-19w. T.D. 824 ft.; cmtd. 5-in. at 817 ft.; W.O.C.
Kutz Deep Test, Inc.'s No. 1 Govt., C NW NW Sec. 28-28n-10w. Drlg. 675 ft.
Angel Peak Oil Co.'s No. 9 fee, C NE NW Sec. 24-28n-11w. T.D. 1,870 ft.; prep. to complete; est. 3,000,000 cu. ft. gas.
Continental Oil Co.'s No. 100 Rattlesnake, SE NW NE Sec. 2-29n-19w. T.D. 7,407 ft.; P.B. to 6,676 ft.; tstg.

San Miguel County

Ben E. Keith's No. 1-X McCune, SW SE SW Sec. 32-16n-12e. Drlg. 1,590 ft. in gr. sh.

Socorro County

Joiner Oil Corp.'s No. 1 Belen Grant, SE NW Sec. 16-3n-1e. Cmtd. 10-in. at 585 ft. and S.D.

Valencia County

C. A. Grober et al's No. 1 Fuqua, NE NE Sec. 19-5n-3e. T.D. 3,850 ft.; prep to run 7-in.

COLORADO

El Paso County

F. F. Hintze et al's No. 1 State, CEL SE SE Sec. 16-11s-66w. S.D. 895 ft. (C.D.); to run 8-in.

Huerfano County

The deep test in Huerfano County being drilled by I. E. Sideman-White, and others, in their No. 1 Martinez, is getting under way and is making hole below 500 ft. with rotary tools. The formation at the surface, consisting of sand and muck was very bad, and immediately beneath it the drill went through 40 ft. of granite wash and went into the lime concretions in the Pierre shale 120 ft. high. This test is located about 15 miles north and east of the group of shallow tests in and around Section 3-28s-68w, which had some oil shows at around 500 ft., and is just north of S. W. Pressey's No. 1 Thorne on what he has named the Badito-Alamo structure.

I. E. Sideman-White et al's No. 1 Martinez, C SW NE Sec. 33-26n-67w. Drlg. below 500 ft.

La Plata County

Nick Spatter's No. 1-X Bryce, C SW SW Sec. 31-33n-9w. S.D. 3,090 ft. for drlg. line.

Larimer County

Of several wells reported drilling in the Berthoud-Longmont district, only two are classed as wildcats in search of oil, the others being a test for coal and a water well. One of the tests for oil is Ed Shogren's No. 1 Edward Frazier, 7 miles northwest of Longmont, which has the Hygiene at around 900 ft. as its objective. It is near a well drilled by the Kuner-Empson Co. for water but which had a small show of oil. The other is the Leslie Steele well, which is trying to test a show of gas in the Hygiene.

Ed Shogren et al's No. 1 Frazier, SE¼ Sec. 31-4n-69w, S.D. 450 ft.

L. R. Steele et al's No. 1 Mundt, NE NE NE Sec. 7-3n-69w. T.D. 1,816 ft.; fsg.; wtr. partly S.O. with 5⅞-in. at 1,485 ft.

Montezuma County

McElmo Oil Co.'s No. 1 West, NE NW NE Sec. 31-36n-17w. Drlg. 5,285 ft. in blk. L.&sh.; S.S.O.; est. 2,000,000 cu. ft. gas at 5,241 ft.

Park County

South Park Oil Co.'s No. 1 Lemar, NE NE SE Sec. 34-11s-75w. S.D. 7,172 ft.

Moffat County

Great Divide Pet. Co.'s No. 1 Wyatt, SE¼ Sec. 4-6n-92w. S.D. 724 ft.; 10-in. froze at 650 ft.; will res. as soon as weather conditions improve.

Routt County

L. C. Craig-E.L. Moore's No. 1-X Erwin, C SW NE Sec. 33-7n-85w. T.D. 2,220 ft.; trying to recmt. 6⅝-in. at 2,055 ft.

Washington County

Thurman Oil Tr.'s No. 1 Ruby, NW NW SW Sec. 3-5s-52w. T.D. 1,360 ft.; prep. to res. with rot. tools.

WYOMING

Big Horn County

Frank S. Scott's No. 1 Robertson, SE SE SE Sec. 6-54n-93w. S.D. 650 ft.; acct. weather.

Yale Oil Corp.'s No. 1 Simonson, Lot 53, Sec. 34-55n-97w. Cg. below 4,025 ft.

Carbon County

Ohio Oil Co.'s No. 12 State, CWL NE¼ Sec. 34-20n-78w. Loc. (first report).

Tri-State O. & R. Co.'s No. 17, NW SE NW Sec. 20-21n-80w. Drlg. 578 ft.; 4½-in. cmtd. at 576 ft.

Sinclair-Wyoming Oil Co.'s No. 4-E, C SE SW Sec. 29-26n-87w. T.D. 4,326 ft.; P.B. to 4,295 ft. for further tstg.

Albert Dev. Synd.'s No. 1 Boeke, SW NW Sec. 18-25n-79w. S.D.O. 922 ft. in grnt.

Converse County

Shawnee Expl. Co.'s No. 1 Salisbury, SE SW NE Sec. 27-32n-69w. Rdy. to spd.

Lincoln County

Lincoln O. & G. Co.'s No. 8 Tribal, C NE SW Sec. 23-1s-1e. T.D. 457 ft.; C.O. at 325 ft.

H. C. Harris et al's No. 1 Govt., SE NW NW Sec. 23-21n-117w. Drlg. 2,691 ft.

Fremont County

Tropic Oil Co.'s No. 1 Govt. C SE SW Sec. 34-27n-90w. T.D. 3,495 ft.; cmtd. off tools after sidetrkg.

F. F. Hintze's No. 1 Govt., CWL NW NW Sec. 7-28n-92w. T.D. 1,135 ft.; fsg.

Hot Springs County

Oscar B. Grace's No. 5 Govt., SE NW Sec. 21-43n-92w. Drlg. 200 ft.

Campbell et al's No. 2 Kyne, NW SE SW Sec. 22-43n-92w. T.D. 60 ft.; rng. 8¼-in. for W.S.O.

Natrona County

General Pet. Corp.'s No. 121-G, NW NW NW Sec. 21-35n-77w. Drlg. 7,604 ft.

Niobrara County

Lance Creek had one completion, several near-completions, and three new operations. The Argo Oil Co.'s No. 8 Ford, SE NE NW Section 33-36n-65w, an outside well on the north and a ¼-mile extension of the Leo sand pool, was completed at 5,416 ft., total depth, for 1,680 bbl. first 24 hours through a ¾-in. choke on the tubing, from the Leo sand at 5,345-5,406 ft.

The most interesting of the new wells will be the Ohio Oil Co.'s No. 7 State-Lamb, the most easterly well in the field, which will explore the Sundance possibil-

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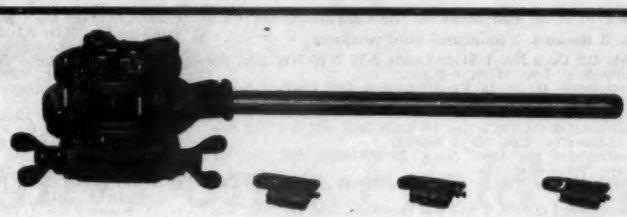

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ities. It is an east offset to the Continental Oil Co.'s No. 3 Rodeo-4, a Sundance sand producer.

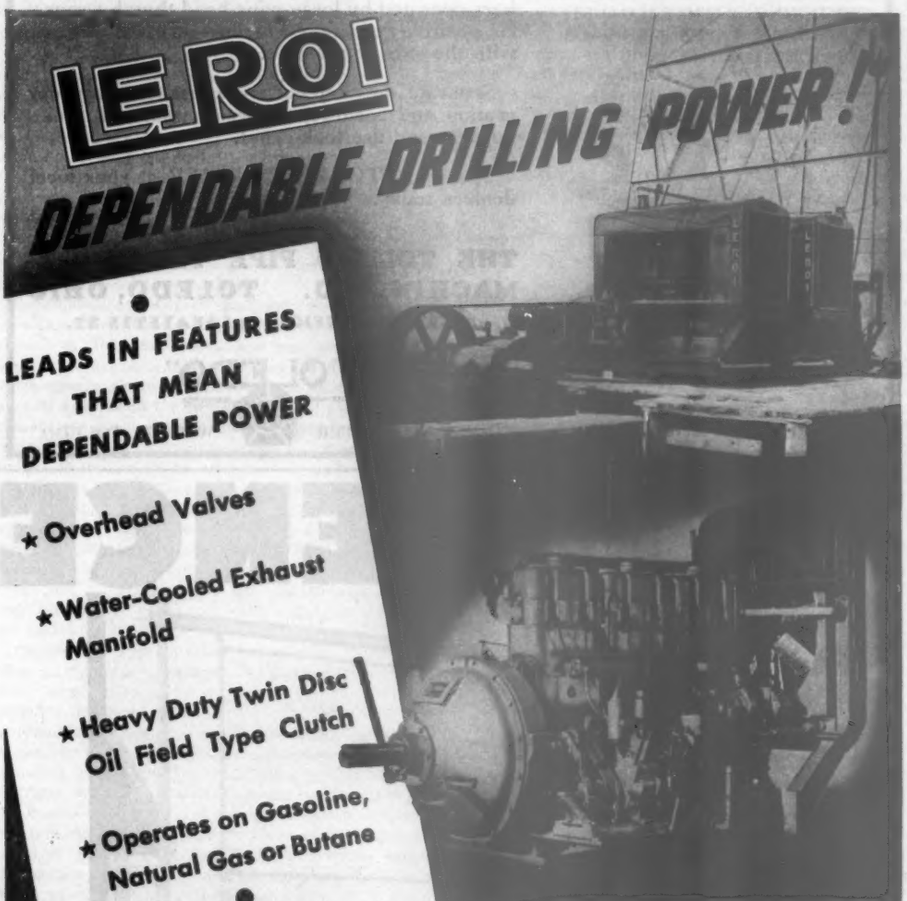
Ohio Oil Co.'s No. 7 State-Lamb, NW NW NW Sec. 36-36n-65w. Loc. (first report).
MacKinnie O. & D. Co.-Minnelusa Oil Corp.'s No. 9 Thompson, NW SE NW Sec. 7-35n-65w. B.R. (first report).
Continental Oil Co.'s No. 18 Tom Bell, SE NE NE Sec. 33-36n-65w. Loc. (first report).
Continental Oil Co.'s No. 7-B Dielman, SE SE NE Sec. 7-35n-65w. Loc.
Ohio Oil Co.'s No. 16 Putnam, SW SW NW Sec. 4-35n-65w. Loc.
Continental Oil Co.'s No. 6-B Dielman, NE SW NW Sec. 8-35n-65w. R.U.R.
Minnelusa Oil Corp.'s No. 1 Joss, NE SE NW Sec. 6-35n-65w. Drlg. 4,700 ft.
Minnelusa Oil Corp.-MacKinnie O. & D. Co.'s No. 8 Thompson, SW NE NW Sec. 7-35n-65w. Drlg. 4,685 ft.
Minnelusa Oil Corp.'s No. 1 Ford, SW NW NE Sec. 33-36n-65w. T.D. 5,373 ft.; crd. sat. sd. 5,371-73 ft. cmtd. 7-in. at 5,350 ft.; W.O.C.
Continental Oil Co.'s No. 6 Apex-O.P.C.-4, SW NW NW Sec. 35-36n-65w. B.R.
Ohio Oil Co.'s No. 14 Carrie Putnam, NW SW SW Sec. 33-36n-65w. Drlg. 4,183 ft.; T. first Sundance 3,725 ft.
Ohio Oil Co.'s No. 15 Carrie Putnam, NW NE SW Sec. 33-36n-65w. Rig; W.O. equip.
Continental Oil Co.'s No. 10-B Schuricht, SE SE SE Sec. 6-35n-65w. Drlg. 2,295 ft.; cmtd. 10-in. at 313 ft.
Continental Oil Co.'s No. 6-A Schuricht, SE NE SE Sec. 6-35n-65w. T.D. 5,162 ft.; T. Leo sat. 5,152 ft.; rng. Schlumberger.
Continental Oil Co.'s No. 5 Apex-O.P.C.-1, NE SW NE Sec. 34-36n-65w. T.D. 4,158 ft.; swbd. 26 B.O. in 24 hrs. from Sundance; shot with 20 qts.; rng. tbg. to tst.
Argo Oil Co.'s No. 12-A Elliott, SE NW NE Sec. 7-35n-65w. Drlg. 5,391 ft.; will go to Joss sd.
Minnelusa Oil Corp.'s No. 4 H. & M., NE NE SE Sec. 7-35n-65w. T.D. 5,542 ft.; crd. sat. starting at 5,516 ft.; cmtd. 7-in. at 5,505 ft.; rng. tbg.
Ohio Oil Co.'s No. 6 Rohlff, SE NW NE Sec. 32-36n-65w. Drlg. 5,312 ft.
H. D. Moore's No. 1 Berggren, SE NW Sec. 23-35n-63w. T.D. 2,526 ft.; rng. 4¾-in. for W.S.O.
Ohio Oil Co.'s No. 8 Converse Sheep, NW SE SW Sec. 32-36n-65w. T.D. 4,994 ft.; mudding off sand to D.D.; O.W.D.D.

Sublette County

Marvel Oil Co.'s No. 1-H Govt., CEL NE SE Sec. 28-27n-113w. S.D. after R.U.
North La Barge Oil Co.'s No. 1 Govt., SW NE SE Sec. 8-27n-113w. Drlg. 1,710 ft.

Sweetwater County

Sinclair-Wyoming Oil Co.'s No. 91-A, SE NE NE Sec. 10-26n-90w. Drlg. 1,955 ft.
Vermillion Oil Co.'s No. 2 Govt., SW SW SW Sec. 7-12n-99w. Drlg. 2,516 ft.; dry sd. 2,475-2,500 ft.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Sinclair-Wyoming Oil Co.'s No. 90-A, SW SW NW Sec. 11-26n-90w. T.D. 2,149 ft.; swbd. 160 bbl. in 7 hrs.; W.O. pmp. equip.

Weston County

Bruce C. Teeter's No. 1 State, C SW NE Sec. 36-32n-61w. S.D. 2,270 ft. (C.D.); may go to Bell sd.
Butcher Bros.' No. 5, SW NW NE Sec. 16-46n-63w. R.O.G.

MONTANA

Blaine County

F. J. Buscher's No. 1 Evey, C NE SE Sec. 12-32n-17e. Cmtd. 10-in. on bttm. at 60 ft.

Glacier County

A. B. Cobb's No. 1 Churl, C SW NW Section 30-37n-4w, an important wildcat in the North Cut Bank area, stopped drilling at 2,712 ft., where it had water in the top of the Cut Bank sand. It will plug back and test the upper sands. It is a little more than a mile to the southeast and the same distance to the southwest of the nearest producers. The Moulton sand was cut at 2,581-2,600 ft. and had a show of oil at 2,582-95 ft. The Sunburst sand was at 2,680-2,704 ft. and had a show of oil and gas. It was given a bailing test before drilling on down and made 5 bbl. in 24 hours. The hole then was deepened to the top of the Cut Bank sand which showed 2½ bailers of water per hour. It will plug back to the Sunburst. Elevation 3,804 ft.

Texas Co.'s No. 1 Unit, 11, C NE SW Sec. 11-35n-6w. B.R. (first report).
Annand Hutchings' No. 4 Federal Land Bank, 2,310 ft. from W and 2,310 ft. from S lines, Sec. 11-34n-6w. B.R. (first report).
Santa Rita O. & G. Co.'s No. 10 Tribal, NW NW NW Sec. 15-35n-6w. Cmtd. 10¾-in. at 582 ft.; T. Colo. 578 ft.
A. B. Cobb's No. 5 Van Demark, CSL SE NE Sec. 35-35n-6w. Loc.
A. B. Cobb's No. 5 Walberger, CNL NE SE Sec. 35-35n-6w. B.R.
Glacier Prod. Co.'s No. 2 Maltby, C NE NE Sec. 8-33n-5w. Drlg. 2,365 ft.
Gracier Prod. Co.'s No. 1 Barrington, CSL NE SW Sec. 19-33n-5w. Drlg. 2,430 ft.
Glacier Prod. Co.'s No. 1 Evans, C SW NE Sec. 21-33n-5w. Drlg. 2,200 ft.
Newell & Chandler's No. 1 Anderson, C NE NW Sec. 1-36n-6w. Cg. 3,005 ft.
Santa Rita O. & G. Co.'s No. 4 Stahl, CSL NW SE Sec. 20-33n-5w. S.D. 1,590 ft.
British American Oil Co.'s No. 12 Tribal, C SE NW Sec. 34-35n-6w. T.D. 2,885 ft.; rebldg. rig; burned down.
R. C. Tarrant's No. 5 State, NW NE SE Sec. 36-34-6w. T.D. 2,380 ft.; fsg. tools.
Helmac, Tr.'s No. 3 Govt., Lot 3, Sec. 32-33n-5w. R.O.G.
Cobb-Reagan's No. 4 Jackson, SW SW SE Sec. 5-32n-6w. R.U.R.

Toole County

Prevol & Shay's No. 5 Govt., SE NW SW Sec. 11-35n-3w. T.D. 155 ft.; set 10-in. (first report).
Coolidge & Coolidge's No. 3 McCurdy, SE NW SW Sec. 2-35n-3w. Drlg. 1,540 ft.
Mosby Oil Corp.'s No. 3 Pederson, SE NW SE Sec. 7-35n-2w. Drlg. 1,678 ft.; contact 1,671 ft.
Casper T. Olen's No. 9 Engemoen, NW NE NW Sec. 14-35n-2w. S.D. 70 ft.
L. J. Yealy's No. 14 Shaw, NW SW NE Sec. 35-36n-2w. R.O.G.
Superior Pet. Co.'s No. 3 Haugen, C NE NE Sec. 11-35n-3w. S.D. 1,300 ft.
Lemac Oil Co.'s No. 1, C NE NE Sec. 27-36n-2w. T.D. 1,906 ft.; contact 1,900-06 ft.; good S.O. in sdy. L.; S.D.

UTAH

Grand County

Reeder Corp.'s No. 1 State, NE NE NE Sec. 16-22s-19e. T.D. 700 ft.; U.R. 8¼-in. to bttm. for W.S.O.

SOUTH DAKOTA

Butte County

Two Top O. & G. Co.'s No. 2 SE NE Sec. 30-10n-6e S.D. 2,147 ft. for repairs.

Kansas Fields

(Continued from Page 70)

at 3,090 ft., it was acidized, water intruded and it was dry and abandoned at 3,118 ft., total depth.

Texon Oil Co.'s No. 3 Hall, C W½ SW SE Section 26-14-13w, recently was completed for 772 bbl. of oil daily at total depth of 2,880 ft.

Butler County

Adair & Morton's No. 1-A Sawyer, SE SE SW Section 10-28-7, Brandt area, Butler County, found Mississippi lime pay at 2,742-50 ft., total depth 2,765 ft., was acidized and completed for 50 bbl. of oil daily. Cable tools were used.

Same operator's No. 1 Thomas, SW SW SE Section 10-28-7, was completed for 42 bbl. of oil daily after acidizing Mississippi lime pay found at 2,765-73 ft., total depth.

Stevens County

Republic Natural Gas Co.'s No. 2 Parker, C NE¼ Section 31-34-36w, Hugoton field, Stevens County, rotary-tool test, was completed in Winfield pay at 2,668-2,820 ft., total depth. It produced 6,400,000 cu. ft. of gas initially; was acidized and gaged 13,900,000 cu. ft. daily.

Texas and Louisiana Gulf

By NEIL WILLIAMS

Another Salt-Dome Field in Louisiana Is Now in Prospect

HOUSTON, Tex., Mar. 11.—Testing of a prospective pool opener in Iberia Parish, Louisiana; recovery of oil sand in a flank test at the old Cote Blanche salt dome, and extensions to several proven fields marked up an interesting week of developments in the Gulf Coast district.

Plymouth Oil Co.'s No. 1 McHugh, Bayou Pigeon prospect, Iberia Parish, coastal Louisiana, cemented casing for a production test of three sands which have shown pipe-line oil on drill-stem tests. The hole is bottomed at 10,021 ft., and 7-in. casing was cemented at 8,268 ft. Sands which have shown pipe-line oil were logged at 7,275-85 ft, 7,928-52 ft., and 8,057-71 ft. The well is southeast of the Fausse Point dome in Section 13-12s-10e.

The prospect of opening production on the south flank of the old Cote Blanche salt dome, St. Mary Parish, was encouraging, as sand, showing good porosity and saturation, was recovered in sidewall cores from Texas Co.'s No. 1 State Cote Blanche. The hole is bottomed at 8,685 ft., with sand logged at 3,109-37 ft. and at 3,141-60 ft. The sand section is reported to have shown as much as 36.5 per cent porosity and 20 per cent saturation. The well may be carried deeper before the section is given a production test. Cote Blanche is one of the oldest known salt structures in the district having been discovered in 1921. Previous development had been confined to shallow tests and no commercial production has ever been developed.

Approximately 7 miles northwest of the South Roanoke field, Jefferson Davis Parish, Continental Oil Co.'s No. 1 Niblett's farms, loomed as a discovery well, as it attempted to blow out. Broken sand and sandy shale and lime with a show of oil were cored at 11,069-71 ft., and the well tried to blow out at a total depth depth of 11,619 ft. The top of the section was logged at 11,612 ft. The well is reported to have shown a small amount of distillate.

Mikton Oil Co.'s No. 2 Martinez, southeast of the discovery well of the La Fourche Crossing field, La Fourche Parish, perforated casing at 10,018-24 ft., and the well flowed an unestimated amount of distillate before it was shut in, due to the flow lines freezing. The perforations have been squeezed off and the casing is scheduled to be reperforated in an attempt to lower the gas-oil ratio.

Eola Extended

A slight northwest extension was recorded for the Eola field, Avoyelles Parish, as Gulf Oil Corp. and others completed No. 1 Moulier for an initial production of 665 bbl. per day, flowing through a ¼-in. choke. The hole is bottomed at 8,575 ft., and production was obtained by perforating casing at 8,512-30 ft., and at 8,557-70 ft.

An east extension to the Woodlawn field, Jefferson Davis Parish, was indicated as Union Production Co. prepared to test No. 1 W. L. Trimble. Casing was cemented on bottom at 9,515 ft., and the well is to be tested through perforated casing at 9,493-97 ft., which may provide the field with a new producing horizon.

Superior Oil Co. added another producer to the Grand Lake field in Cameron Parish with the completion of No. 7 State. Casing was perforated at 8,500-05 ft., and the well flowed at the rate of 275 bbl. daily through a 10/64-in. choke.

Along the Wilcox trend, and in Beauregard Parish, Atlantic Refining Co.'s No. 1 Lutcher Moore Lumber Co., West Juanita prospect, topped the Tertiary Wilcox formation at approximately 9,563 ft., and the well is drilling ahead below 9,688 ft. In the same parish, and in the Neal area, the company's No. 1 D. A. Whitmer is coring shale below 8,150 ft.

In Rapides Parish another dry hole was marked up for the Wilcox trend as S. W. Richardson abandoned No. 1 Hillyer-Edwards at 9,340 ft.

Texas Coast

Development along the Texas coast provided several extensions to proven fields. In the Anahuac field, Chambers County, a ⅛-mile east extension was indicated as Humble Oil & Refining Co.'s No. 1-B Garth, T.&N.O. Survey No. 67, recovered several hundred feet of pipe-line oil on an 18-minute drill-stem test at 7,140-63 ft., total depth. During the past few months, several additional acres have been added to the field by development on small fault structures on the east and southeast edge of the field.

Gas and distillate production in the Bammel field, Harris County, was extended approximately ½ mile east, as Earl Hankamer and others' No. 1 W. M. Graves flowed gas and distillate from perforated casing at 6,248-59 ft. In the Clear Lake field, approximately 3,500 ft. southwest of production, Humble Oil & Refining Co.'s No. 34-C West was showing for a producer while cleaning out at a total depth of 5,843 ft.

In the Anchor field, Brazoria County, Glenn H. McCarthy was preparing to test No. 1 Galaznik, approximately 2,000 ft. southeast of production. Casing was cemented on bottom at 10,495 ft. preparatory to testing at intervals from 9,977-10,492 ft. Another well scheduled to be tested is Humble Oil & Refining Co.'s No. 1 Galaznik and Taylor, northeast of production. This well was drilled to 10,994 ft., and casing was cemented to test oil and gas sands logged at intervals from 10,350 to 10,706 ft.

Titanic Oil Co. and others' No. 1 E. W. Boyt, a wildcat located on the Double Gum prospect, Liberty County, was attracting attention as casing was being cemented on bottom at 8,700 ft. An electrical survey is reported to have shown favorable indications in two sand sections topped at 8,571 ft. and at 8,509 ft. This well made its appearance as a probable pool opener several weeks ago when it blew out from a total depth of 8,834 ft. The blowout stuck the drill stem and the hole was plugged back and sidetracked at 7,824 ft. The well is expected to be drilled below the 8,800-ft. horizon before a production test is made of the upper sands.

In the Caplen field, Galveston County, Sun Oil Co. was preparing to test No. 1-26 State. The well was drilled by directional methods to a total depth of 7,660 ft., and 7-in. casing was cemented at 6,175 ft. The well is the most southerly in the field, and if productive will open a new horizon for the field.

On the southeast edge of the Martha field, Liberty County, Stanolind Oil & Gas Co.'s No. 1 Ross, tested salt water through perforated casing at 8,135-40 ft., and the company is retesting through perforated casing at 8,092-96 ft.

Southwest of Van Vleck, Matagorda County, Texas Co. has derrick up for No. 1 Taylor, a projected deep wildcat located in the Freeman George Survey. In the same county and north of Wadsworth, Stanolind Oil & Gas Co. is drilling below 4,000 ft.

Northeast of the League City field, Galveston County, Continental Oil Co.'s No. 1 Lobit-Ghirardi was abandoned as a dry hole at 10,743 ft., and the company is moving the rig to No. 1 Stewart Title Guaranty Co., approximately 1,350 ft. southeast of the abandoned hole.

Coastal Drilling Co.'s No. 1 C. F. Coombs, east of the Mauritz field, Jackson County, recovered several hundred feet of pipe-line oil on a drill-stem test at 5,614-44 ft., and casing was set for completion.

TEXAS GULF COAST COMPLETIONS IN PROVEN FIELDS

Brazoria County

West Columbia field: Hogg Oil Co.'s No. 9 Hogg, perforated casing 5,370-5,410 ft., 476 bbl., ¼-in. choke.

Fort Bend County

Thompson field: Humble Oil & Refining Co.'s No. 5-A Wolters, sand 5,404-17 ft., 526 bbl., ¼-in. choke. Humble Oil & Refining Co.'s No. 25 Davis, sand 4,335-45 ft., 97 bbl., ⅛-in. choke.

Hardin County

Silsbee field: Republic Production Co.'s No. 27 fee, 6,909 ft., 483 bbl., ¼-in. choke.

Harris County

Fairbanks field: Gem Oil Co.'s No. 2 White, perforated casing 6,824-29 ft., 66 bbl., 12 hours, ¼-in. choke.

Jackson County

West Ranch field: Humble Oil & Refining Co.'s No. 6 Toney, 5,530 ft., 425 bbl., ¼-in. choke. Magnolia Petroleum Co.'s No. 46-A West, perforated casing 5,756-64 ft., 618 bbl., ¼-in. choke. Magnolia Petroleum Co.'s No. 47-A West, perforated casing 5,110-14

(Continued on Page 85)

La.-Ark. Fields

(Continued from Page 71)

acidized with 4,000 gal., pumping 60 bbl. of oil and 35 bbl. of salt water.

Urania—La Salle Parish

Graham & Carter's No. 40 Urania, 700 ft. south and 500 ft. east of NW cor. SW NW Section 18-10-2e, pumping about 200 bbl. of oil and 50 bbl. of salt water, total depth 1,519 ft.

ARKANSAS COMPLETIONS

Magnolia—Columbia County

Oliphant Oil Co.'s No. 1 Rowe, 460 ft. north and 660 ft. east of SW cor. Section 16-17-20, total depth 7,668 ft., set 6-in. casing at 7,648 ft.; initial production 672 bbl.; tubing pressure 1,050 lb., casing pressure 1,100 lb. Placid Oil Co.'s No. 2 J. W. Booth unit, C NW SW Section 20-17-19, flowed 360 bbl. through ¼-in. choke; tubing pressure 2,150 lb., casing pressure 2,500 lb., 6-in. casing set at 7,535 ft., total depth 7,585 ft.

Rodessa—Miller County

Dr. J. S. Rushing's No. 1 D. Wood, 1,681 ft. west and 461 ft. south of NE cor. Section 18-20-27, flowed 97 bbl. through 16/64-in. choke, tubing pressure 550 lb., casing pressure 650 lb., total depth 6,135 ft.

Wildcat—Union County

Bob Branch's No. 1 J. M. Davis, 130 ft. from SW cor. SE NW Section 28-16-14, total depth 3,533 ft., dry and abandoned.

Schuler—Union County

Phillips Petroleum Co.'s No. 5 Brian, C SE NW SE Section 13-18-18, set 5½-in. casing at 7,654 ft., perforated at 7,563-86 ft., flowed 332 bbl. through ¼-in. choke, tubing pressure 1,025 lb., total depth 7,670 ft.

EAST TEXAS BORDER COMPLETIONS

Smithland—Marion County

J. D. Reynolds' No. 1-C Terry estate, 150 ft. south and 1,820 ft. east of NW cor., Lewis Needham Survey, dry and abandoned, total depth 2,480 ft.

(Mississippi field report is on Page 97)

Oklahoma Operations

By
DAL DALRYMPLE

Marshall County Strike May Open Big Field in Lake Area

An oil discovery that may have national repercussions was recorded in Oklahoma last week when Pure Oil Co. found production in the first Tulip Creek sand at its No. 1 Quinton Little, C W½ NE SE Section 28-5s-7e, wildcat east of Madill, in Marshall County, and on the banks of the Washita River. It is in an area that will be inundated if the federal Government goes ahead with its plan to construct a dam on the Red River a few miles below its confluence with the Washita.

The first sand in the Tulip Creek of the Simpson formation was found at 4,952 ft. It was cored at 4,954-61 ft., and drill-stem test was made with packer at 4,902 ft. It started flowing through ¾-in. choke on drill stem at the end of 22 minutes, and in the next 14 minutes flowed through a 2-in. line into the pits at an estimated 5 bbl. of oil a minute. The oil was 37° gravity, light brown crude.

After a brief shutdown, operators began deepening in quest of a second Tulip Creek sand and may drill to Arbuckle lime before testing. In a core at 5,017-22 ft., there was a 5-ft. recovery of medium tight, limy sand, with stains and a good odor in sand streaks, and some free oil. The next core at 5,022-27 ft. also resulted in a 5-ft. recovery, the first foot consisting of medium grained, limy sand with stain and odor and some free oil, and the next 3½ ft. consisting of tight sand with no showings. At time of writing the crew was drilling ahead below 5,040 ft., momentarily expecting top of the second Tulip Creek sand.

Estimates of production, based on drill-stem test, ranged from 3,000 to 5,000 bbl. daily. Gas was estimated at 6,000,000 cu. ft.

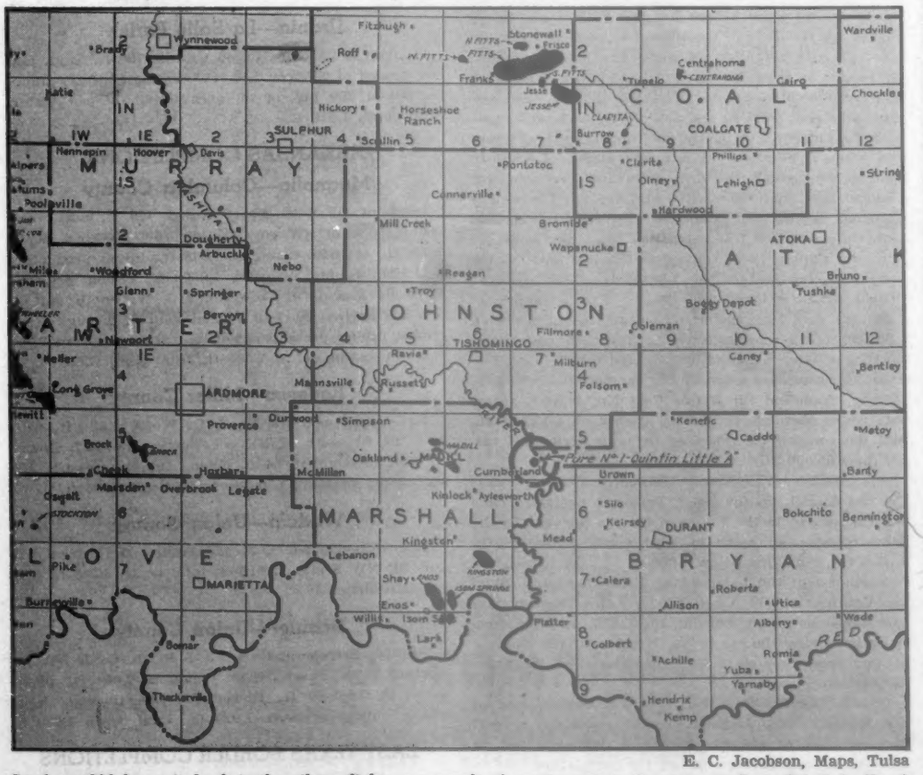
The Marshall County strike has caused more excitement in Oklahoma oil circles than any discovery since the Ramsey pool was opened, and some oil men say it is the most important development in the state since the Fitts field was discovered. The Pure Oil Co. has a block of approximately 22,000 acres surrounding the wildcat and located in Marshall, Johnston and Bryan counties. Officials of the company were said to be of the opinion they had uncovered a pool larger than Fitts, which has an area estimated at 5,340 acres. The operators estimated the productive area around the Marshall County discovery at more than 6,770 acres. That figure, of course, is speculative but is based on information based on geology obtained by the company at a cost exceeding $500,000.

The Pure company's block was assembled by Quinton Little over a period of several years. The block is nearly solid, only a few small tracts within the block being held by other operators. There was widespread lease activity in the southern Oklahoma area adjacent to the block, but few leases were reported available anywhere in the three-county spread. Some fancy prices were reported being paid in the few deals consummated.

Governor Phillips, who is opposing construction of the federal dam project on the Red River, conferred with Pure Oil Co. representatives regarding the discovery and its potentialities. He also was interested in the possibilities of drilling the land even if the Denison dam is built on the Red River and the area is inundated. Capt. L. D. Clay, government engineer in charge of the dam project, was said to have directed Irvin Perrine, Oklahoma City geologist, to make a thorough study of the situation for a report to army engineers. It was pointed out that if the proposed reservoir area should prove to be an oil field of considerable size the Government probably would require only the surface rights on the property involved, the mineral rights being retained by the owners.

The strike revived interest in another wildcat being drilled in Marshall County at Johnson & Kemnitz and others' No. 1 Neff-Godfrey, SW SE NE Section 14-6s-6e. It was shut down at 4,455 ft. after showing water on drill-stem test, but operators were preparing to resume work.

Marshall County has produced oil and gas since the shallow Madill pool was opened in 1906, but although several deep tests have been drilled, the Quinton Little well is the first to find production in the lower sands.



E. C. Jacobson, Maps, Tulsa

Southern Oklahoma is back in the oil spotlight as a result of an important discovery at Pure Oil Co.'s No. 1 Quinton Little A, Section 28-5s-7e, near the Washita River in Marshall County, east of Madill. It found deep production in a county where only shallow pools had been uncovered previously. Geographical relation to other southern Oklahoma fields is shown. It is in an area that will be inundated if the proposed Denison dam on the Red River is built

Estimated Daily Production

Estimated daily production for Oklahoma for the week ended March 9, and for the preceding week, was as follows:

	Barrels	
	Mar. 9	Mar. 2
Allen	5,800	5,775
Billings	6,225	6,475
Burbank	7,175	6,950
South Burbank	8,625	8,525
Balance Osage	16,750	16,750
Blackwell district	3,750	3,725
Bristow-Slick	6,275	6,150
Chandler	1,425	1,450
Crescent	2,300	2,275
Cromwell	2,875	2,825
Cushing-Shamrock	9,475	9,350
Duncan	3,700	3,725
Edmond	4,325	4,175
Fish	3,425	3,400
Fitts	19,800	19,650
Jesse	2,200	2,200
Graham-Fox	2,100	2,125
Gray	750	750
Healdton	8,800	8,725
Hewitt	2,850	3,675
Keokuk	3,150	3,125
Konawa	1,275	1,225
Lucien	8,325	8,250
Moore	2,050	2,100
Oklahoma City	103,250	92,000
Olympic	2,450	2,475
Ramsey	4,725	4,650
Sasakwa	1,725	1,700
Sholem-Alechem	2,850	2,825
Seminole district:		
Bowlegs	7,500	7,350
Carr City	2,425	2,475
Dora	2,350	2,325
Earlsboro	4,525	4,425
South Earlsboro	600	650
East Earlsboro	2,200	2,200
Little River	6,750	6,700
East Little River	700	725
Maud	725	700
Mission	1,225	1,250
Seminole	7,425	7,375
East Seminole	1,150	1,175
Searight	2,325	2,325
Total Seminole	39,900	39,675
St. Louis-Pearson	32,500	32,350
Tatums	1,850	1,875
Tonkawa-Garber-Thomas	4,050	4,075
Wewoka	1,600	1,600
Yale-Jennings	3,525	3,525
Other pools	95,000	93,525
Total Oklahoma	426,850	413,650

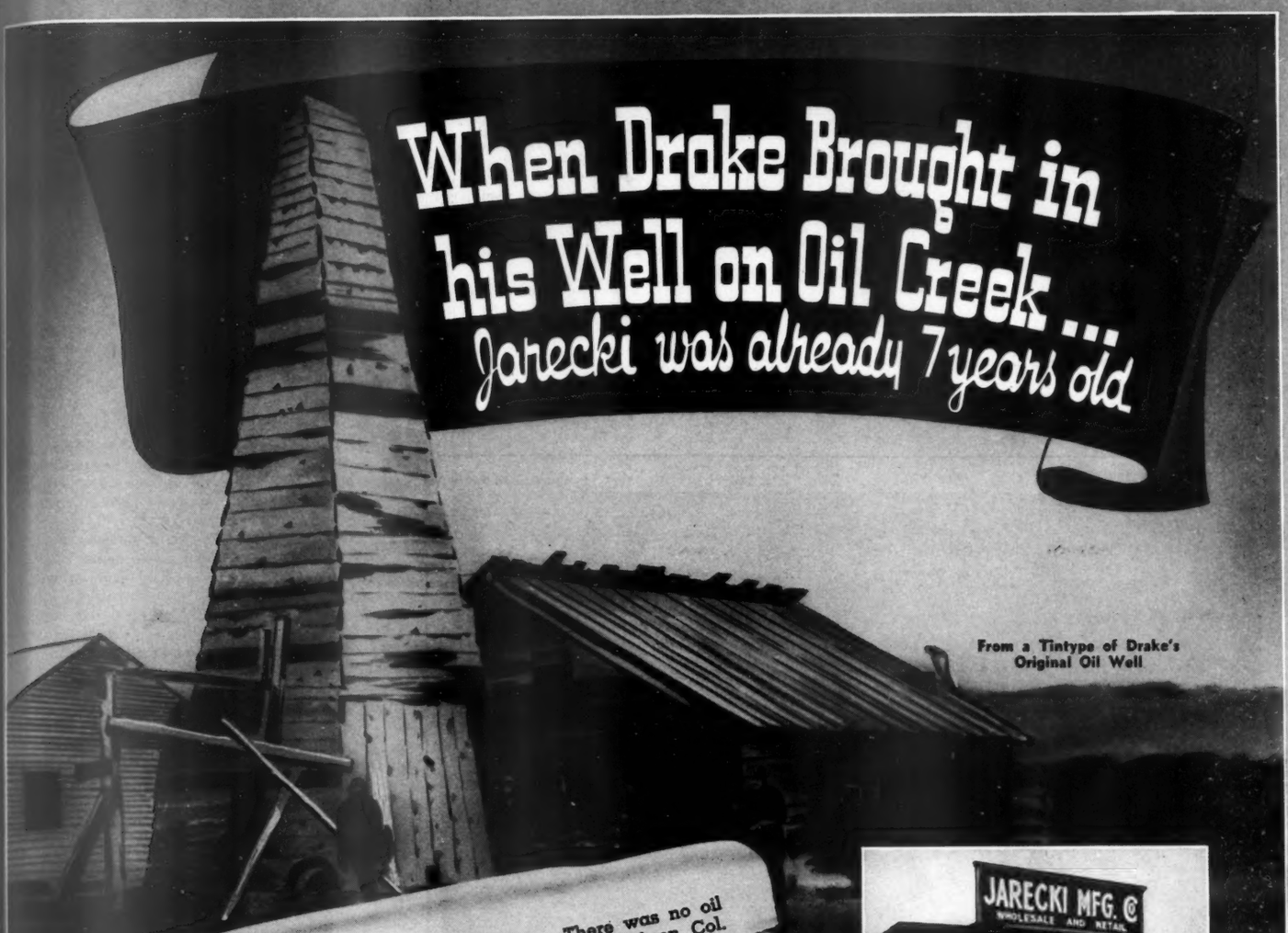
Wildcat Operations

Vierson and others' No. 1 Ramsey, SW NW SW Section 26-6-4, outpost in the Gray area, Pottawatomie County, had Viola lime at 3,598 ft., Simpson dense 3,662 ft., total depth 3,670 ft., plugged back to 3,030 ft., and pumped 40 bbl. of oil and 5 bbl. of water.

Harper-Turner's No. 1 Mann, NW NW SE Section 23-14-5, Lincoln County wildcat, topped Bartlesville sand at 3,937 ft., broken lime 4,069 ft., and was dry and abandoned at 4,105 ft., total depth.

English Drilling Co.'s No. 1-A Aetna, SE SE NE

When Drake Brought in his Well on Oil Creek ... Jarecki was already 7 years old



From a Tintype of Drake's Original Oil Well

THERE were no oil country stores then. There was no oil country. But Jarecki representatives had called on Col. Drake and his associates while they were drilling the first well. This company sensed at once the possibilities and began to make materials to supply the new industry.

JARECKI opened its first branch store in 1867. Since then, this family-owned organization has served the oil industry continuously in the oil fields of the East and Middle West. JARECKI is the oldest oil field supply company in the world which has operated continuously under one management.

JARECKI has kept pace with the oil industry throughout its amazing career. The growth of our valve and fitting manufacturing business and of our oil country distributing service has been steady and sure, because it has been founded on intelligent service to this great and always rapidly growing industry. Today JARECKI is one of the largest manufacturers of valves, fittings, and oil field specialties and operates 38 oil country stores strategically located to best serve the industry throughout its extent from the Atlantic to the Rocky Mountains.

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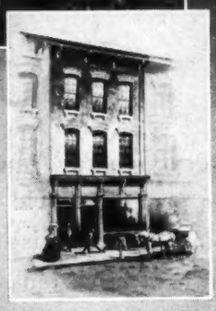
Jarecki Store at Clarendon, Pa., oldest oil field supply store in the world in continuous operation, with possibly one exception.



Original Jarecki Plant —1852—with floor space 18x100 feet

Main Plant of Jarecki Manufacturing Co., at Erie—half a million square feet of floor space.

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Branch Stores at All Important Places in the Oil Country.

Section 26-3-20w, wildcat in Jackson County, a recent completion, had Arbuckle lime at 1,585 ft., total depth 1,856 ft., and was dry and abandoned.

Walker & Johnson's No. 1 Rogers, NE NE NE Section 24-7-9, wildcat east of Holdenville, Hughes County, was dry and abandoned at 635 ft., total depth.

First reports of new wildcats: Sand Springs Home's No. 1-A Cook, NW SW NE Section 28-17-6, Lincoln County, cellar and pits; Johnson's No. 1 Murrell, NE SW SW Section 8-19-9, Mannford district, Creek County, drilling below 900 ft.; Payton Anderson's No. 1 Wentz, C W½ NE SW Section 11-22-2, Noble County, cellar and pits; H. L. Berkey's No. 1 Wilson, NW NW NW Section 4-11-6, Pottawatomie County, south of Prague, location; Jones' No. 1 Warren, NW NW SW Section 28-15-5, moving in rotary.

Pottawatomie County

Culver & Burton's No. 1 Waite, NE SE NW Section 9-5-5, South Konawa pool, Pottawatomie County, topped Hunton lime at 2,349 ft., Viola lime 2,635 ft., total depth 2,644 ft., perforated casing at 2,520-23 ft., and flowed 225 bbl. of oil in 24 hours.

Same operators' No. 2 Waite, SW NE NE Section 9-5-5, had Hunton lime at 2,442 ft., total depth 2,710 ft. in shale, swabbed 60 bbl. of oil in 24 hours; was acidized, and pumped 80 bbl. in 24 hours.

Indian Territory Illuminating Oil Co.'s No. 1 Ackerman, NW SE SW Section 4-6-5, southeast side of the St. Louis field, found dolomite at 4,075 ft., total depth 4,095 ft., was acidized and pumped 388 bbl. of 39-gravity oil, with 2,000 bbl. of water, in 24 hours.

Grisso Royalty Co. and Eason Oil Co.'s No. 1 Crane, NW cor. Section 31-10-5, extended the King pool ½ mile northwestward and was completed after plugging back to 4,275 ft. from 4,429 ft., total depth. Viola lime was topped at 4,341 ft., Simpson dense 4,386 ft. It was acidized, casing perforated and it flowed 120 bbl. of oil through ¼-in. choke in 24 hours.

Alma Oil Co.'s No. 7 Johnson, SW SE SW Section 19-6-5, Gray area, topped Viola lime at 3,550 ft. and was dry and abandoned at 3,577 ft.

Gaskill's No. 2 Sauter, NW SE SE Section 31-11-4, Shawnee pool, topped Earlsboro sand at 4,432 ft., total depth 4,468 ft., was shot and made daily potential of 362 bbl. of oil.

Lincoln County

Wilcox Oil & Gas Co.'s No. 11 School Land, SW SE SW Section 16-14-6, Sac and Fox pool, Lincoln County, flowed 20 bbl. of oil in 24 hours from Prue sand topped at 3,043 ft., and was completed at 3,143 ft., total depth.

In McClain County Patsy Oil Co.'s No. 2 James, NE NE NE Section 16-5-3, Byars pool, was building rig. Simpson-Roodhouse Drilling Co.'s No. 4 James, NE SE SE Section 9-5-3, was a location.

In Latimer County Leflore Gas & Oil Co.'s No. 31 James, C S½ NE Section 11-6-21, was a location.

In LeFlore County Murdoc's No. 1 fee, C NW SW Section 15-5-25, had drilled to 2,700 ft., total depth.

Seminole County

Culver & Burton's No. 1 Swan, SE SE SW Section 3-5-5, Seminole County sector of the South Konawa pool, pumped 100 bbl. of oil in 24 hours, cutting 8 per cent water. Hunton lime was topped at 2,463 ft., total depth 2,763 ft.

Paul McIntyre and others' No. 5 Johnson, NE SW NE Section 10-10-8, Cromwell area, found sand at 1,610-46 ft., total depth, was shot and pumped 90 bbl. of 28-gravity oil in 24 hours.

Alma Oil Co.'s No. 2 Cully, NW NW NW Section 34-7-5, Hazel area, topped dolomite at 4,170 ft., was bottomed at 4,294 ft., and pumped 125 bbl. of oil in 24 hours.

Traugh's No. 1 Scroggins, NW NE SW Section 34-7-6, had Cromwell sand at 3,250-63 ft., total depth, was shot, nothing was showing and it was dry and abandoned.

Magnolia Petroleum Co.'s No. 3 Dixon-Ligon, SW SE SW Section 24-8-7, Wewoka district, topped Hunton lime at 4,120 ft., was bottomed in shale at 4,322 ft., plugged back and perforated, water intruded and it was abandoned.

Ligon's No. 1 Patterson, SW NW SE Section 24-8-7, topped Cromwell sand at 3,312 ft., total depth 3,319 ft., swabbed 90 bbl. of oil in 24 hours and pumped 50 bbl. in 24 hours.

New work in Seminole County: Winemiller's No. 1-A Caesar, SE SE SE Section 20-6-6, cellar and pits; Doppleman's No. 1 Caesar, SW NW SW Section 21-6-6, building rig; Patterson's No. 1 Thlocco, SE SW NW Section 30-7-7, location; Amerada Petroleum Corp.'s No. 2 Davis, NW SW NE Section 3-10-5, building rig; Paul McIntyre's No. 6 Johnson, NW SE NE Section 10-10-8, rigging up machine.

Pontotoc County

Superior Oil Co.'s No. 5 Summers, SW SW NW Section 36-5-4, Bebee area, Pontotoc County, was dry and abandoned at 2,610 ft., total depth.

Yingling's No. 1 Newbern, NW NW SE Section 31-5-4, had rig on ground.

Hughes County

Crescent's No. 1 Meadors, C SE SE Section 5-8-10, North Yeager area, Hughes County, old well, was deepened from 3,094 ft. to Hunton lime at 3,821-96 ft., total depth, acidization was ineffective and it was abandoned.

First reports of new work in Hughes County: Winona Oil Co.'s No. 4 Street, SE NE NW Section 21-7-8, drilling below 715 ft.; Walker's No. 2 Rogers, NE NE NE Section 24-7-9, location; Crescent's No. 3 Meadors, NW NE SE Section 5-8-10, rigging up rotary.

Okfuskee County

Summitt Drilling Co.'s No. 3 Stell, NW NE SW Section 18-10-11, Weleetka area, Okfuskee County, had Booch sand at 2,252 ft., set 5-in. pipe on top of sand, was bottomed at 2,263 ft., and flowed 200 bbl. of oil in 24 hours.

Same company's No. 1 Hildebrand, NE SW SW Section 18-10-11, was a location. Olsen's No. 1 McCool, SE NE NE Section 20-13-10, spudded.

Creek County

L. B. Jackson's No. 1 Nolan, NW NW NE Section 2-17-8, Olive area, Creek County, old well bottomed at 1,590 ft., was deepened to Bartlesville sand at 2,710-28 ft., total depth, and pumped 4 bbl. of oil daily.

(Continued on Page 90)

Robert Yarnall Richie

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A DIVISION OF GENERAL AMERICAN TRANSPORTATION CORPORATION

Medina County Water Flood Giving Satisfactory Results

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Mar. 11.—A rather large-scale water-flooding area is being developed in Medina County, Ohio, and from recent reports is proving satisfactory. In Chatham Township, Tract 10, Lot 3, the Thornton Producing Corp. has completed part of its program with input and output wells on the Sanford & Watson lease. Wells Nos. F-1, F-2, F-6, F-11, F-12 have been completed in the Berea grit at 373, 380, 359, 363 and 370 ft. respectively and all are producing initially 1 bbl. a day; production will be increased with pressure. Wells Nos. 0-4, 0-5, 0-20, 0-21 are completed as input wells at 490, 405, 334 and 365 ft. respectively.

In Perry County B. G. Davis completed a test on the Allton heirs farm in Section 27, Deerfield Township, in Berea sand at 1,253 ft. and it produced 2 bbl. the first day after shot.

In Washington County William Schneider and others completed a gas well at Sacketts Run in Section 27, Ludlow Township, in the Injun sand at 1,430 ft. It is a gas well gaging 25,000 cu. ft. a day. In this section, William A. Cave and others completed No. 5 Isaac Rinard in the Injun sand at 1,390 ft. and it produced 20 bbl. the first day before shot.

In Cuyahoga County Benedum & Trees are drilling in the Newburg sand at 3,000 ft. on the Greenwood lease in Mayfield Height Village and had reached 1,785 ft. in the test on the Boyleston farm.

In Tuscaroras County Natural Gas Co. of West Virginia is drilling at 2,510 ft. on the F. Hrometz farm in Sandy Township and is moving in for No. 782 on the William Evans farm in Lawrence Township.

SOUTHWEST PENNSYLVANIA

In Washington County, Pennsylvania, Union Gasoline & Oil Corp. completed No. 828 C. T. Conn in South Franklin Township, at 1,001 ft., with the Little Dunkard sand at 930 ft. and about 5 bbl. a day at 980 ft.

In this township Burleigh Wright and others, on the Holmes Andrews farm, had reached 200 ft. Here, Foley & Williams are down 1,250 ft. in the No. 3 Rankin Clark. Harry Williams & Co. have reached 1,321 ft. deepening the No. 7 Jason Buchanan.

In Amwell Township, Washington County, Shivers and others are drilling at 2,480 ft., deepening No. 1 Thomas J. Horn. In Hanover Township H. K. Aten is down 1,370 ft. in No. 2 Lee Devitt.

In Allegheny County Joseph C. Trees completed a small gas well on the E. V. Babcock farm in Pine Township in the Hundred Foot sand.

In Franklin Township, Allegheny County, Harbison and others are shut down at 1,350 ft. on the Brown farm. Here, the Otto Dairy Co. is drilling in the Hundred Foot sand on its fee. In South Fayette Township Equitable Gas Co. is down 2,325 ft. on the J. Hickman farm. In West Deer Township, drilling machines are ready to start No. 2 John H. Flick by Walters and others and No. 4 William Rittman by Robert Marshall.

Indiana-Clarion-Westmoreland

In Center Township, Indiana County, the test of the T. W. Phillips Gas & Oil Co. on the R. & P. Coal Co. was drilled to 3,481 ft., through the Bradford sand and was dry. In Washington Township this county is drilling at 687 ft. on the fee and Tomb land, and was testing at 1,100 ft. on the N. M. Spence farm. In White Township this company is rigging up on the H. W. Leech and the J. J. McLain farms.

In Clarion County Owens Illinois Glass Co. is drilling at 1,135 ft. on the Alb Deitrick farm in Limestone Township, and at 2,100 ft. on the C. Fairman farm. In Red Bank Township Apollo Gas Co. is spudding No. 3 Lewis Keck.

In Porter Township, Clarion County, T. Swartzfager and others had reached 1,600 ft. on the C. A. Swartzfager farm and T. W. Phillips Gas & Oil Co. is shut down for lack of water at No. 3 T. C. Blair. In Westmoreland County Apollo Gas Co. is casing at 919 ft. on the D. M. Jones heirs land in Allegheny Township.

Armstrong County

In Boggs Township, Armstrong County, Humphrey, Stone and McCall Corp. is drilling on the W. A. Dill farm. In Kiskiminitas Township Apollo Gas Co. is shut down at 3,740 ft. on the Tressler farm for a shot.

In Cowanshannock Township Peoples Natural Gas Co. is drilling at 1,295 ft. in the A. S. Rearick test, and has staked location on the Lee Bell farm. Here, T. W. Phillips Gas & Oil Co. is drilling at 3,548 ft. in No. 2 Harry Boyer and at 3,440 ft. in No. 2 Jacob Boyer. In Plum Creek Township this company is down 766 ft. in the John Cessna test. Peoples Natural Gas Co. is drilling at 673 ft. in the Frank Smith test; Equitable Gas Co. was building rig on the Agnes Prugh farm; Shelocta Oil & Gas Co. was building rig on the Virginia Shaeffer farm.

In Kittanning Township John Wray and others are drilling at 1,045 ft. in the Benjamin Miller test. Equitable Gas Co. is down 2,968 ft in the N. D. Heilman test. In South Buffalo Township W. A. Baker is drilling at 1,650 ft. on the James Bush farm. In Wayne Township Penn Wayne Gas Co. had reached 1,500 ft. on the Seymore Paunch test.

Fayette-Greene

In Nicholson Township, Fayette County, Greensboro Gas Co. is moving in material on the Kopsky farm and on the Diamond farm. Here, the Duquesne Gas Co. is drilling at 2,325 ft. in No. 3 John Demaske. In German Township Greensboro Gas Co. is down 1,040 ft. on the Holland farm.

In Richhill Township, Greene County, O. I. Dille and others are drilling at 600 ft. on the Madison Hughes land. In Greene Township Equitable Gas Co. was drilling at 495 ft. in No. 2 Hugh Keenan. In Franklin Township Waynesburg Home Gas Co. reached 2,972 ft. in No. 1 Nancy Rush and is testing.

Deep Tests

In Beaver County John T. Galey and others are drilling at 4,730 ft. in No. 1 James Tennis in South Beaver Township, with the drilling still exceptionally hard. There was 72 ft. of Oriskany sand to 4,671 ft., and the next formation proved equally difficult. This test, a former Oriskany sand gas well, is being drilled to the Clinton sand.

In Maryland New Penn Development Co., William E. Snee and others reached 5,560 ft. on the Humberson farm on the Accident dome in Garrett County and then found the hole blocked by an obstruction at 4,647 ft. After a week of drilling the old hole had not been reached.

In Stewart Township, Fayette County, on Laurel Ridge, these operators and E. G. Mueller are drilling at 5,916 ft. on the Gregg L. Neel farm.

In South Union Township, Fayette County, on Chestnut Ridge, Peoples Natural Gas Co. is hauling in material to the Piedmont Coal Co. land just south of Route 40.

WEST VIRGINIA

Two small oil wells were completed in West Virginia during the week. In Ritchie County Hope Construction & Refining Co. completed No. 3725 S. C. Hammett in the Grant district in Squaw sand at 1,985 ft. It is good for 1 bbl. a day.

In Roane County Rogers Properties Co. completed No. 2 Elizabeth Moore heirs in Curtis district in Salt sand at 1,826 ft., and it is rated good for 8 bbl. a day.

In Lincoln County Harmon Gas Co. completed a gas well on the Robert Lovejoy farm in Union district at 3,781 ft. good for 125,000 cu. ft. a day.

In Ritchie County Howard Hall drilled a test on the Ed Calhoun farm in Union district through the Injun sand to 2,065 ft. and it was a dry hole.

In Wayne County Grover Lowe and others completed a gas well on the Lucinda Luster farm in Union district at 3,143 ft. which gaged 200,000 cu. ft. a day after a shot, with gas pays at 2,400, 2,603, 2,603, 2,648 and 2,725 ft.

Oriskany Gas Fields

One well is being completed in the Oriskany gas field in Kanawha County where in Poca district the

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Columbian Carbon Co. is drilling at 5,323 ft. on the W. S. Jones farm with the Corniferous lime topped at 5,163 ft., Oriskany 5,282 ft., and a gage of 2,439,000 cu. ft. a day. Same company is drilling at 4,216 ft. in the Ida Mairs and others test; at 1,080 ft. on the V. E. King and others land and rigging up the Joseph Hughart test. United Fuel Gas Co. is down 4,242 ft. in No. 4863 Mary E. Carney and at 1,858 ft. in No. 4864 W. J. Glass. G. L. Cabot, Inc., is drilling at 1,450 ft. in No. 4 Putnam Co.; United Carbon Co. at 3,710 ft. on the Louisa E. Long farm; at 240 ft. on the Rosie Scott and others land; at 1,215 ft. in the W. C. Woodall and others test. West Virginia Gas Corp. is drilling at 1,370 ft. in the Leon Jones test and is hauling in material for the Elizabeth Thaxton and others test. W. O. Ziebold is down 520 ft. on the Hattie E. Clark farm.

Outside Deep Tests

In Grant district, Jackson County, Joe Rubin reshot the well on the Henry Morrison farm after acidizing, and the final gage after cleaning out was 337,000 cu. ft. a day. This operator will now start a well on the C. E. Andricks farm northeast of the Morrison farm well.

In Ripley district, Jackson County, Everett Starcher and others completed a gas well on the W. L. Fisher farm at 5,045 ft. with the Oriskany showing 553,279 cu. ft. a day before shot. In this district Columbian Carbon Co. is drilling at 5,368 ft. in No. 2 Putnam Co. Godfrey L. Cabot, Inc., is shut down at 5,090 ft. in No. 3 Putnam Co.

In Washington district, Jackson County, United Carbon Co. completed No. 5 Elizabeth W. Perkins at 1,752 ft. in Big lime, with a gage of 495,000 cu. ft. a day before a shot. Nos. 3 and 4 were Oriskany gas wells.

Kentucky Fields

(Continued from Page 64)

Troublesome Creek. Inland Gas Corp. has reached 1,339 ft. in No. 212 W. R. Smith and others on Perkins Branch. Kentucky-West Virginia Gas Co. was drilling at 1,710 ft. in Salt sand in No. 582 B. F. King land, on the Joe King Branch, and is moving to No. 584 on the Jeffie Hall land on Isaac Fork of Right Beaver. Kentucky-West Virginia Gas Co. made a location for No. 5264 on the W. H. May land on Long Branch of Jones Fork.

In Floyd County Kentucky-West Virginia Gas Co. is setting machine for No. 585 on the A. C. Webb land on Sanson Fork of Prater Creek, and is moving to location of No. 586 on the Levi Mitchell tract on Mitchell Branch of Mud Creek, and to No. 5262 on the W. R. Hall farm on Jacks Creek of Left Beaver and made location for No. 5263 James Sturgill on Keathley Branch of Toler Creek, and is moving to location of No. 5253 George McKinney land.

Hamilton Gas Co. is down 1,950 ft. in No. 17-E on the Reuben Short land and is drilling at 1,680 ft. in No. 18-E on the Lindsey Amburgey tract.

In Martin County Kentucky-West Virginia Gas Co. is down 125 ft., in sand, in No. 583 on the Wilson Short land on Rockcastle.

Warfield Gas Co. is drilling at 835 ft., in Salt sand, in No. 4869, Tract 7, T. J. Hardin land on Rockhouse Fork, and is down 1,312 ft., in Big lime, in No. 4871 on the A. D. Speer and others land on Coldwater Fork. The same company was spudding No. 4870 on the David Ward land, Tract 1, on Higden Run.

Virginian Gas & Oil Co. made locations for No. 1269-V on Federal Gas & Oil Co. land on Coldwater Fork; No. 1281-V on the Nancy Jane Cassaday farm on Left Rockcastle, and No. 1283-V on the William H. Blankenship land on Left Rockcastle.

In Pike County Columbian Fuel Co. is down 1,270 ft., in slate and shells, in No. 838 on the Tierney Land Co. tract on Stratton Fork and is fishing in slate at 232 ft. in No. 839-GW on B. Compton Branch.

United Carbon Co. is drilling at 2,660 ft. in slate and shells in No. 5822 Republic Steel tract on Dry Fork.

In Lawrence County Rockcastle Gas Co. completed No. 3 on the J. W. Hall land on Rock Creek at the 2,467-ft. level but data on production is not available this week.

The Big Blaine Gas & Oil Co. is planning to drill another well in the Busseyville-Fallsburg district. The well will probably be on the Savage farm, according to information received here.

In Wise County, Virginia, Southeast Drilling Co. is fishing for tools in the deep test on the Hagan heirs land on Little Stoney Creek. The well reached a total depth of 3,770 ft. but caved in, according to reports here.

WESTERN KENTUCKY

OWENSBORO, Ky., Mar. 11.—Two oil wells and two dry holes were completed in western Kentucky in the past week in review. Following were the completions, near completions, and new operations announced in the course of the week:

Daviess County, Utica district: J. C. Ellis and the Petroleum Co.'s No. 2 Lewis N. Burns, cleaning out cavings, McClosky saturation at 1,697-1,703 ft., total depth 1,711 ft. Stewart, Snyder & Sargant's No. 5 Roy Hansford, shot Bethel sand with 80 qt. at 1,459-81 ft., total depth; cleaning out. Hewlett's Store district: F. F. Gibson and others' No. 2 W. H. Harrison, shot Jackson and Bethel sands with 1,000 lb. of gelatine; initial production 25 bbl.; total depth 1,077 ft. Cane Run School district: Mecca Oil Co.'s No. 1 Virgil Jackson, dry hole through Jett sand, total depth 724 ft.

Hancock County, Maceo district: Ohio Oil Co.'s No. 1 George Edwards, dry hole, total depth 1,131 ft.

Henderson County, Corydon district: Sun Oil Co. and Kentucky Natural Gas Co.'s No. 3 Corydon unit, swabbing 2¼ bbl. per hour; will acidize. Zion district: Imperial Oil & Gas Products Co.'s No. 1 J. R. Williams, location.

McLean County, East Livermore district: W. E. Hupp and others' No. 2 Owen Vandiver, fishing at 150 ft.

Muhlenberg County, Belton district: Walter Hagan's No. 1 Drake (Wickliffe Coal Co.), shut down at 1,403 ft. with hole full of Blue Lick water. Shearn Coal Co., trustee's No. 1 Pratt, dry hole through McClosky lime, total depth 1,599 ft.; oil showing in Jones sand at 1,162 ft.; Bethel sand at 1,394 ft., and McClosky lime at 1,588 ft.; Blue Lick water appeared at 1,592 ft.

Ohio County, Sunnydale district: Tuttle & Russell's No. 3 C. E. Wimsatt, 20-bbl. well in upper Pennsylvanian sand; shot with 30 qt.; total depth 176 ft.

Webster County, Sebree district: Iley Browning's No. 1 E. H. Sellers, will clean out and drill deeper; old total depth 1,405 ft.

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Southwest Texas District

By F. L. SINGLETON

Extensions and New Sands; Deep Tests For Flour Bluff

CORPUS CHRISTI, Tex., Mar. 11.—While important extensions and new sand discoveries were reported for several fields in Southwest Texas, main interest continued to be held by the deep-drilling program along the old Jackson shore-line trend. Five of the six wells drilling in search of Tertiary Wilcox production had reached their objectives, and it is possible that the outcome of these tests will be known some time this week.

Mills Bennett Production Co. and Anderson-Prichard Oil Corp.'s No. 2 D. E. Robinson, West Tuleta field, Bee County, recovered 6 in. of oil sand in a core at 8,109-19 ft.; salt-water sand at 8,014-24 ft. and 8,049-61 ft. A porous sand with an oil odor was cored at 8,119-22 ft., and the well is reported to have tested salt water on a drill-stem test at 8,117-22 ft. While the top of the Wilcox sand was not announced, the well is thought to be several feet in the formation, and the recovery of salt is disappointing. The hole may be deepened, or the operators may decide to plug back and test a sand at 7,515-35 ft., which was logged as a gas and distillate sand by an electrical survey.

In the old Pettus field, Bee County, Union Producing Co.'s No. 56 Ray is coring in shaly sand below 7,604 ft. Shaly sand with an oil odor was cored at 7,589-94 ft. and sand with no showing at 7,594-7,601 ft. Approximately 7 miles southwest of Beeville Bunte Brothers and others' No. 1 J. T. Earnest is drilling in shale below 8,806 ft. This test is scheduled to be drilled to 9,500 ft. or 400 ft. into the Wilcox formation. Protection acreage around the well is held by several major companies.

Atlantic Refining Co.'s No. 1 Conwell, in the Thomaston area, De Witt County, is coring in sand and shale below 8,170 ft., with no additional showings of oil or gas reported. Broken sand and shale with an oil and gas showing were cored the previous week at intervals from 7,840 to 7,908 ft.

Near the town of George West E. M. Jones' No. 1-A West is reported to have topped the Carrizo formation at 7,063 ft., and the well is coring below 7,465 ft.

Kelsey Field Extended

The Starr County side of the Kelsey field was extended approximately 3,000 ft. southwest as Humble Oil & Refining Co.'s No. 62 McGill recovered 1,800 ft. of oil and 40 ft. of salt water on a 44-minute drill-stem test at 4,744-54 ft., the total depth. Casing, 5½-in., was cemented at 4,745 ft. Approximately 1 mile west of production Royal Oil & Gas Co.'s No. 1 Juarez is bottomed at 5,638 ft., and 7-in. casing was cemented at 4,728 ft. preparatory to testing oil and gas showings logged at 4,512-16 ft. Drill-stem testing at 5,586-5,603 ft. recovered salt water, and casing was cemented after an electrical survey and side-wall cores showed favorable indications.

Between the above field and the Sun field, Starr County, Sun Oil Co.'s No. 1 Rodriguez is coring below 6,502 ft. A drill-stem test at 6,428-32 ft. recovered 25 ft. of gas-cut drilling mud, while another test at 6,434-40 ft. developed 495 lb. of working pressure, and recovered 325 ft. of salt water and 170 ft. of oily mud.

In the Sejita field, Duval County, Standard Oil Co. of Texas' No. 1 Rodriguez, 1,500 ft. northwest of the discovery well, showed gas and distillate in the Yegua sand when drill-stem tested at 6,570-6,618 ft. The company was plugging back to test at approximately 5,500 ft.

The second oil producer in the Wade City field, Jim Wells County, was apparently assured as Rodney DeLange's No. 3 McNeil cored soft oil sand at 4,812-17 ft. and recovered 1,290 ft. of pipe-line oil on a drill-stem test. Another 15-minute test at 4,822-32 ft. developed 50 lb. of working pressure and 600 ft. of oil and salt water, while a third test at 4,939-45 ft. showed 70 lb. working pressure, and the well flowed pipe-line oil while the testing tool was being pulled. Wade City was originally opened as a gas and distillate field, and the first crude production on the structure was recently opened by DeLange's No. 1-A McNeil, which was completed at 4,923-28 ft.

Colorado Field Extended

The Colorado field, Jim Hogg County, was being extended to the north as Humble Oil & Refining Co. prepared to complete No. 3 King ranch. The hole is bottomed at 3,055 ft., and 5½-in. casing was cemented at 3,043 ft.

Approximately 2 miles north of the newly opened Fagan field, Refugio County, H. J. Porter is moving in material for No. 1 R. H. Morrow in the Edward Perry League. The well is being drilled on a farmout lease from Barnsdall Oil Co. In the Fagan field Barnsdall Oil Co. and Transwestern Oil Co. started drilling No. 2 P. H. Ragan. The well is a northwest offset to Humble Oil & Refining Co. and Quintana Petroleum Co.'s P. H. Fagan lease in the Nicholas Fagan Survey.

Deep Tests at Flour Bluff

In Nueces County Humble Oil & Refining Co. is preparing to start drilling two deep tests in the Flour Bluff area. Approximately 1 mile southwest of production, derrick is up for No. 1 D. F. Duncan, Lot 2, Block 50, of the Flour Bluff and Encinal subdivision. In Laguna Madre Bay a canal is being dredged for No. 1-D State in Tract 30, a projected 10,000-ft. test on the downthrow side of a fault, extending along the east side of the field.

In the Odem area, San Patricio County, Fred Wood continues to test No. 1 Hart. After swabbing salt water with a slight show of oil through perforated casing at 6,910-13 ft., casing was reperforated at 6,907-11 ft., and at the close of the week the well was being swabbed.

Another producing horizon was being opened in the McCampbell field, Aransas and San Patricio counties, as Baytex Oil Corp.'s No. 1 Peoples and Nichols was reported to be flowing pipe-line oil and wash water while cleaning out through perforated casing at 7,461-64 ft. The well is testing through a ½-in. choke. It is bottomed at 7,604 ft., and 5½-in. pipe was cemented at 7,604 ft. Drilling activity in the field during the past few weeks has shown a large increase, and at the present time more than 16 rotaries are active.

In the Victoria field W. V. Hardin's No. 1 Buckert, Victoria Four League grant, cored sand showing oil and gas at 3,036-43 ft., and on a 9-minute drill-stem test at 3,039-43 ft. recovered 970 ft. of 20.8-gravity oil, and working pressure built up to 37 lb. Casing is being cemented for completion. Production from this sand was opened several weeks ago by the same operator.

V. G. Schimmel's No. 1 Volpe, Mary H. Pennell Survey No. 698, Webb County, is shut down at a total depth of 2,328 ft., and casing may be cemented to test sand at 2,318-28 ft.

In the Baicones fault line Fred Nute's No. 1 Howell, 2½ miles southeast of the Darst Creek field, Guadalupe County, is testing a saturated section logged in the Taylor marl at 2,580-2,616 ft. Southeast of Seguin Wellington Oil Co.'s No. 1 Batey was abandoned at 3,870 ft. The Austin chalk was topped at 3,475 ft.

SOUTHWEST TEXAS COMPLETIONS IN PROVEN FIELDS

Aransas-San Patricio Counties

McCampbell field: Gillespie & Sons' No. 1 Harrison, perforated casing 7,208-15 ft., 98 bbl. ¼-in. choke. Southern Minerals Corp.'s No. 3 McCampbell, perforated casing 7,158-62 ft., 124 bbl., 5/32-in. choke. Southern Minerals Corp.'s No. 4-A Scrivner, perforated casing 7,147-52 ft., 118 bbl., 9/64-in. choke.

Caldwell County

Dale field: Ralph Ogden's No. 3 Talley, 2,286 ft., 488 bbl. in 17 hours through open 2-in. tubing.

Duval County

Cedro Hill field: Magnolia Petroleum Co.'s No. 23 Duval County Ranch Co., sand 1,420-34 ft., 27 bbl. in 21 hours, jetting. Government Wells field: Magnolia Petroleum Co.'s No. 3 Hahl, 3,968 ft., dry and abandoned. Hoffman field: Continental Oil Co.'s No. 13 Collings, sand 2,669-75 ft., 56 bbl. in 13 hours, jetting. Magnolia Petroleum Co.'s No. 1 Well, perforated casing 2,590-2,600 ft., gas well. Magnolia Petroleum Co.'s No. 8 Well, 3,140 ft., dry and abandoned. Rancho Solo field: Andrus Reed and others' No. 4 Peters, perforated casing 1,873-94 ft., 65 bbl., pumping. Tarancahuas field: Purvis & Appell's No. 1 Hoffman, 2,112 ft., dry and abandoned.

Guadalupe County

Elm Creek field: E. A. Weyel's No. 1 Matike, 712 ft., 14 bbl., pumping.

Jim Hogg County

Colorado field: C. Andrade's No. 2-A Trevino, sand 3,015-33 ft., 90 bbl., ⅞-in. choke. Colorado Octane Co.'s No. 4-C Trevino, sand 3,051-70 ft., 30 bbl., 5/32-in. choke. Humble Oil & Refining Co.'s No. 10 Atwood, 3,077 ft., 67 bbl., pumping. Humble Oil & Refining Co.'s No. 11 Atwood, 3,073 ft., 132 bbl., 3/16-in. choke. Gutierrez field: Titanic Oil Co.'s No. 3 Gutierrez, 3,301 ft., dry and abandoned. Kelsey field: Humble Oil & Refining Co.'s No. 18 Bass, 4,762 ft., dry and abandoned.

Jim Wells County

Magnolia City field: V. J. Meyer and others' No. 3 Shear, 5,655 ft., 42 bbl., ¾-in. choke. Reynolds field: Texas Gulf Producing Co.'s No. 1 Burger, 5,251 ft., dry and abandoned. Premont field: H. H. Howell's No. 1 Bell, perforated casing 2,358-68 ft., 10 bbl. of oil, 90 bbl. of fresh water, jetting.

Kleberg County

Bird Island field: Pure Oil Co.'s No. 1 State, perforated casing 7,296-98 ft., 39 bbl., ¼-in. choke.

Medina County

Chacon Lake field: Charles Wagener's No. 47-A Medina Irrigation Co., 412 ft., 2 bbl., pumping.

Refugio County

La Rosa field: Coronado Corp.'s No. 19 Rooke, perforated casing 6,337-39 ft., 168 bbl., ⅛-in. choke. Royal Oil & Gas Co.'s No. 5-A Schirmir, perforated casing 5,410-13 ft., 157 bbl., ⅛-in. choke. Tomoconnor field: Quintana Petroleum Co.'s No. 9-B Williams, perforated casing 5,785-93 ft., 661 bbl., ¼-in. choke.

San Patricio County

East White Point field: Houston Oil Co.'s No. 9 Baldwin, perforated casing 5,636-65 ft., 166 bbl., ⅛-in. choke. Plymouth Oil Co.'s No. 1 Shary, perforated casing 5,680-83 ft., 94 bbl., 7/64-in. choke. Republic Natural Gas Co.'s No. 27 Raschal, perforated casing 5,536-44 ft., 140 bbl., ⅛-in. choke. Republic Natural Gas Co.'s No. 28 Rachal, perforated casing 5,595-5,610 ft.,

(Continued on Page 85)

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Among the Drilling

NOBLE DRILLING CO., Tulsa, is the contractor on Pure Oil Co.'s No. 1 Little, Section 28-5s-7e, prospective pool opener in Marshall County, southern Oklahoma, which indicated big production from Tulip Creek sand on drill-stem test at 4,900-61 ft. It has caused more excitement in Oklahoma than any discovery since the Ramsey pool. The crew was drilling deeper, operators desiring to test lower formations before completing. Location is on a 22,000-acre block in Marshall, Johnston, and Bryan counties.

SUMMITT DRILLING CO., Tulsa, completed a 200-bbl. well on its acreage in the Weleetka area, Okfuskee County, Oklahoma, in Booch sand at 2,263 ft., and was starting work at a new test in the same area, Section 18-10-11.

LEE DRILLING CO., Tulsa, has been reported receiving contracts for 20 wells in the southern part of the North Cowden field of Ector County, West Texas. The wells will be drilled for Barnsdall Oil Co. and are all included in a continuous drilling program for Sections 12 and 13, Block 43, T-1-S, T.&P. Survey. The area is at the extreme southeastern end of the North Cowden field and the 20 new wells, when completed, will practically link the North Cowden field with the Johnson extension area of the Foster field. It was reported that the contracting firm would receive a part of its fee out of oil payments from the property.

DELTA DRILLING CO., Tyler, Tex., and George Etx, Lubbock, Tex., who are jointly drilling a north-extension test to the Slaughter field of Hockley County, West Texas, reported the well swabbing about 200 bbl. of fluid, 70 per cent oil, in 18 hours. The extension test is No. 1-A Slaughter, SE cor. Labor 21, League 41, Maverick County School Lands Survey, about a mile north and slightly east of production in the field. The well is bottomed at 4,977 ft. and has been acidized with 2,000 gal.

LEE JONES, drilling contractor of Olney, Tex., is reported to have received contract for E. R. Marchman and others' No. 1 G. W. Keeling, deep 3,500-ft. wildcat recently staked in Parker County, West Central Texas. The deep test will seek production from the Caddo lime and is located in the F. Lidely Survey, Abstract 829, in the northeastern part of the county and about 1½ miles west of Springtown. It will be drilled with rotary and hole will be kept in condition for drilling to 5,500 ft. if 3,300-ft. Caddo lime production fails, the operator announced.

GRANVILLE HAYES and Jack Fitzpatrick, drilling contractors and independent producers, have moved their office from New Harmony, Ind., to Mount Carmel, Ill.

C. B. PETERS, JR., Edward C. Lawson, and K. O. Herwig, all of Tulsa, have organized the Consolidated Drilling Co., with capital of $50,000.

GEORGE ECHOLS is preparing to test Titanic Oil Co.'s No. 2-B Guiterman in the South China field, Jefferson County, Texas, and is drilling in a sidetracked hole below 8,400 ft. in the same company's No. 1 E. W. Boyt, a prospective pool opener located east of the Hankamer field, Liberty County. Another rotary will be moved to Jefferson County for Titanic Oil Co. and others' No. 1 W. S. Clubb, a wildcat located between the South China and Fannett fields.

HOUSH & THOMPSON are moving a rotary to the Perkins gas field, Calcasieu Parish, Louisiana, for a deep test which will be drilled for themselves. Another operation is located in Livingston Parish for Roderick & Tower.

WRIGHT DRILLING CO. is moving in material for Coffe & Norwood's No. 1 Guethlin, a wildcat about 2 miles southwest of the Mauritz field, Jackson County, Texas. Contract depth is 6,000 ft.

LON CRON is starting a joint wildcat in Calhoun County, Texas, with R. N. Ranger. The well is located in the northern part of the county, about 5 miles north of Port Lavaca. Contract depth is 6,500 ft.

HANNUM DRILLING CO. was moving in materials for a test in the Barton County sector of the Otis-Albert gas and oil field in Kansas. It is the No. 1 Dirks, C SW¼ Section 18-18-15w.

GLENN H. McCARTHY is attempting to extend production in the Anchor field, Brazoria County, Texas, as a production test is being made at the contractor's No. 1 Galznik, about ½ mile southwest of production. The well was drilled to a total depth of 10,495 ft., and casing was

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Contractors

cemented to test sands at intervals from 9,977 to 10,492 ft. Two other operations are reported in the field, while in the Chocolate Bayou field the contractor's No. 1 Andrau and No. 2 Houston Farm Development Co. have passed the 11,000-ft. horizon.

JACK FRAZIER abandoned Dick Schwab and others' No. 1 Foster estate in Montgomery County, Texas, at a total depth of 8,250 ft. In Bee County, Bunte Brothers' No. 1 J. T. Earnest, a wildcat southwest of Beeville, is drilling below 8,800 ft.

BUCK MACY, former New Mexico state geologist, has the contract to drill the Macy, Tallmadge & Cowell No. 1 State, SE SW Section 32-17-29, between the Loco Hills and Artesia areas in northern Eddy County, New Mexico.

RAY DORRIS DRILLING CO., of Seminole, Okla., has contracted to drill No. 1 Jones, Section 16-58-17w, wildcat in Macon County, northern Missouri. It is to be drilled to the granite unless commercial production is found above that level.

HARRY GORE, of Wichita, Kans., is the contractor on Finston & Gore's No. 1 Burmeister, Section 27-16-11w, Barton County, Kans., It is in the Prusa field. Cable-tool rig was being erected.

SAM SCHNEIDER, Hutchinson, Kans., drilling contractor, has the contract to drill Finston & Co. and others' No. 1 Gum, Section 34-19-10w, north end of the Silica field, Rice County, Kansas, with rotary tools. It is an Arbuckle lime test, but may be completed above that zone if profitable production is found in upper zones.

CROSBY DRILLING CO. is drilling in shale below 9,530 ft. in Strake Petroleum Co.'s No. 1 Poole, a projected Tertiary Wilcox test located in the Lissie area, Wharton County, Texas.

FAIN DRILLING CO. and Continental Oil Co. were running electrical log survey at No. 1 Schnakenberg, NE SE SW Section 21-21-4w, wildcat in Garfield County, Oklahoma. It had Wilcox sand at 6,515 ft. and recovered hard sand with salty taste in cores.

GILLESPIE & MOORE, of Holdenville, Okla., have started work at Canavan & Davis, Inc.'s No. 3 Meadors, Section 5-8-10, Wetumka area in Okfuskee County, Oklahoma. Viola lime and Wilcox sand horizons will be tested.

HANNUM DRILLING CO., Wichita, Kans., was rigging up cable tools at George Hannum and others' No. 1 McComb, Section 22-24-11w, prospective Viola lime discovery ½ mile south of the Zenith field, Stafford County, Kansas. Other wells in the Zenith area produce from Misener sand.

PEM DRILLING CO., associated with W. L. Hartman, of Wichita, Kans., is drilling the northwest offset to the discovery well in the North Bornholdt pool, McPherson County, Kansas.

Crew on a Magnolia Petroleum Co. rig drilling in the Walnut Bend field of Cooke County, North Texas: H. D. Orr, derrick man; R. P. Adkins, floor man; T. J. Reeves, floor man; I. E. Stallows, driller, and W. F. Allen, motor man

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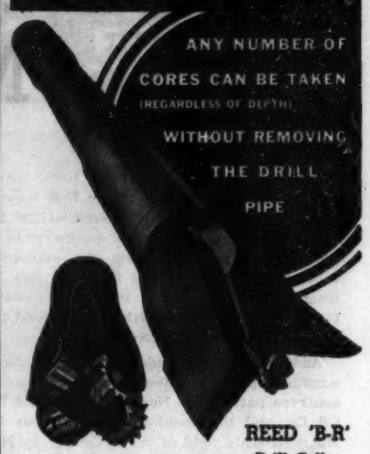

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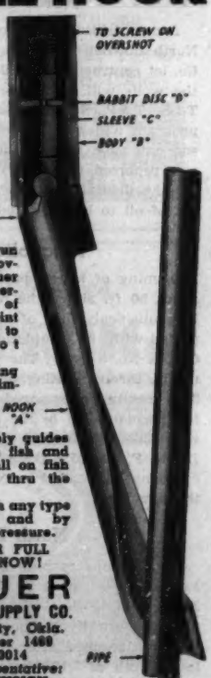

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West, Central and Panhandle Texas

By
D. H. STORMONT

Holt Horizon May Extend 1½ Miles South in Ector County

MIDLAND, Tex., Mar. 11.—More than 1¼ miles south of the proven area of the Holt horizon in northern Ector County a wildcat entered the testing stage last week to indicate another extension to this increasingly active play. Carrying the exploration several miles north of its present center, a new wildcat contracted to 5,600 ft. was staked in western Andrews County about 9 miles north of Richmond Drilling Co.'s No. 1 University, an active wildcat.

Adding to an eventful week in West Texas was the announcement of a 20-well drilling campaign for the southern part of the North Cowden field by Barnsdall Oil Co. and the opening of a new pay level in the Magnolia-Sealy field of Ward County by Mid-Continent Petroleum Corp.

One and one-half miles south of the present productive limits of the Holt horizon in northern Ector County, Landreth Production Corp.'s No. 2-A TXL, NW cor. Section 3, Block 43, T-1-S, T.&P. Survey, found the Holt lime and drilled saturation as the week closed. After coring two sections of saturation between 5,171 ft. and 5,196 ft., the hole was bottomed at the latter depth for testing. First section of saturation was found between 5,184 and 5,187 ft., while the second zone was between 5,188 and 5,196 ft., the latter core showing considerable bleeding oil. As the week closed operators were allowing the hole to stand 24 hours to determine the rise of the fluid level.

Seeking a ¾-mile-northwest extension to the Holt horizon, Barnsdall Oil Co.'s No. 1 Blakeney, Section 2, Block A, P.S.L. Survey, slightly north and west of Gulf's discovery well, was drilling below 3,000 ft. in anhydrite. In the western part of Andrews County a new Holt horizon wildcat was to extend the play along a 35-mile strip through northern Ector and southern Andrews counties. It will be Illinois Oil Co. of Dallas' No. 1 University, 660 ft. from the north and west lines of Section 14, Block 12, University Lands Survey. The contract depth, 5,600 ft., is expected to carry the hole slightly below the Holt lime.

North Cowden Field

A new drilling program for the southeast end of the North Cowden field was reported when Barnsdall Oil Co. let contracts for a 20-well drilling campaign. All of the wells will be in Sections 12 and 13 of Block 43, T-1-S, T.&P. Survey. The completion of this drilling program will practically link the field with the Johnson extension area of the Foster field to the south. It was reported that Lee Drilling Co., Tulsa, contractor for the drilling program, would receive part payment out of oil to be produced.

Magnolia-Sealy Field

Opening of a new pay level from 2,991 to 2,995 ft., about 50 ft. above the regular producing zone in the Magnolia-Sealy field of northern Ward County, was reported with the completion of Mid-Continent Petroleum Corp.'s No. 5 Sealy. The well flowed 66 bbl. of oil naturally, through casing, on a 3-hour gage. The oil tested 37.5 gravity as compared with the 30.4-gravity oil from the regular level of the field. The new well is on the west side of the field and in the NE SW Section 47, Block F, G.&M.M.B.&A. Survey. The Mid-Continent company has staked its No. 6 Sealy as a west offset to the new well.

North Basin Area

Preparations to plug and abandon were under way as the week closed at H. F. Wilcox Oil & Gas Co.'s No. 1 Powell, Section 134, Block 12, T.L.&R. Survey, northwestern Lynn County wildcat. Decision to abandon was reached after running electrical survey to a total depth of 5,182 ft. A core from 5,145 to 5,160 ft. had previously shown a sulfur odor.

In western Hockley County Denver Producing & Refing Co. and Helmerich & Payne, Inc.'s No. 1 Whiteface Farms was shut down for orders at a total depth of 4,780 ft. After being bailed dry the hole showed 109 gal. of oil and 779 gal. of salt water. The operators' decision was not announced. Location is 660 ft. from the south and east lines of Labor 22, League 27, Reeves County School Lands Survey.

Midland County

First exploratory work in Midland County in several months was seen when Humble Oil & Refining Co. obtained option on a block of 16,000 acres for a geophysical exploration. Humble obtained the option on the ranch of Donald L. Hutt. It is in the southeastern part of the county.

WEST TEXAS COMPLETIONS
(24-hour gages)

Andrews County

A wildcat, Chaplin & Bass' No. 1 L. McQuaters, dry and abandoned at 4,596 ft.

Crane County

In the Dunes field Great Western Production Co.'s No. 1-C University, 3,165-3,321 ft., 305 bbl.

In the McElroy field Gulf Oil Corp.'s No. 209 McElroy, 2,632-2,845 ft., 875 bbl. Shell Oil Co., Inc.'s No. 7-A McClintic, 2,882-3,065 ft., 208 bbl.

Ector County

In the Foster field Barnsdall Oil Co.'s No. 3 Mae Witcher, 4,000-4,190 ft., 1,041 bbl. Broderick & Calvert's No. 19 Witcher, 3,975-4,175 ft., 1,679 bbl. M. J. Delaney's No. 1-A Johnson, 4,055-4,165 ft., 344 bbl. Schermerhorn Oil Co.'s No. 7 Johnson, 4,050-4,200 ft., 961 bbl. Sunray Oil Co.'s No. 4-B Witcher, 4,210-4,308 ft., 228 bbl. York & Harper's No. 1 Marcus Gist, dry and abandoned at total depth of 4,699 ft.

In the Goldsmith field Gulf Oil Corp.'s No. 251 Goldsmith, 4,128-86 ft., 912 bbl. Gulf Oil Corp.'s No. 252 Goldsmith, 4,121-3,211 ft., 1,683 bbl. Gulf Oil Corp.'s No. 253 Goldsmith, 4,102-92 ft., 1,023 bbl. Gulf Oil Corp.'s No. 255 Goldsmith, 4,147-4,205 ft., 946 bbl. Landreth Production Corp.'s No. 10-M Scharbauer, 4,132-77 ft., 464 bbl. Phillips-Pure's No. 6 J. Cowden, 4,114-81 ft., 2,668 bbl.

In the North Cowden field M. J. Delaney's No. 7 Smith, 4,202-4,415 ft., 1,278 bbl. J. M. Rush's No. 2 Midland Farms, 4,400-50 ft., 24 bbl.

A wildcat, Landreth Production Corp. and Shell Oil Co., Inc.'s No. 1-A Johnson, top Yates 2,800 ft., top brown lime 3,850 ft., top Clear Fork 5,155 ft., and dry and abandoned at total depth of 5,308 ft.

Gaines County

In the Wasson field Continental Oil Co.'s No. 7-51 Wasson, 4,925-95 ft., 800 bbl. Magnolia and Atlantic's No. 1-195 H.&J., 5,085-5,250 ft., 640 bbl. Magnolia and Atlantic's No. 1-265 H.&J., 5,090-5,295 ft., 820 bbl.

Lynn County

A wildcat, H. F. Wilcox Oil & Gas Co.'s No. 1 E. L. Powell, top anhydrite 2,450 ft., top Yates 2,810 ft., top brown lime 3,670 ft., top solid lime 4,170 ft., dry and abandoned at 5,182 ft.

Pecos County

H. L. Cain's No. 1 C. S. Lehman, dry and abandoned at 1,685 ft. Culbertson & Irwin's No. 4 Fromme, 1,632-40 ft., 65 bbl. Ohio Oil Co.'s No. 13 Smith, 1,335-97 ft., 327 bbl. Sahara Oil Co.'s No. 8-B Sullivan, 1,685-95 ft., 107 bbl. Stanfield & Walker's No. 3 Reed, 1,657-74 ft., 45 bbl.

Upton County

In the McCamey field Gulf Oil Corp.'s No. 2 King, 2,655-2,727 ft., 190 bbl.

Ward County

In the O'Brien field Gulf Oil Corp.'s No. 127 O'Brien, 2,770-2,875 ft., 254 bbl.

In the Hutchins field Gulf Oil Corp.'s No. 134 Hutchins, 2,557-3,077 ft., 300 bbl.

In the Estes field West Texas Oil & Royalty Co.'s No. 6-C University, 2,420-2,671 ft., 2,838 bbl.

In the Payton field W. A. Black & Sons' No. 5 Texas Cotton Industries, 1,920-21 ft., 255 bbl.

Winkler County

In the Keystone field Gulf Oil Corp.'s No. 35 Keystone, 3,240-3,382 ft., 491 bbl.

In the Hailey field Skelly Oil Co.'s No. 38 Hailey, 2,750-2,885 ft., 1,943 bbl. Texon Oil & Land Co.'s No. 7-27 Cowden, 2,810-2,977 ft., 259 bbl.

Yoakum County

In the Wasson field Aloco Oil Co.'s No. 6 Hovencamp, 4,921-5,104 ft., 1,635 bbl. Anderson-Prichard Oil Corp.'s No. 1-759 Gibson-Willard, 4,900-5,200 ft., 1,620 bbl Honolulu Oil Corp.'s No. 1 Willard, 4,890-5,210 ft., 1,264 bbl. Humble Oil & Refining Co.'s No. 25 Wooten, 4,960-5,106 ft., 462 bbl. Mabee Oil & Gas Co.'s No. 16 Willard, abandoned location. Mabee Oil & Gas Co.'s No. 19 Willard, abandoned location. Mabee Oil & Gas Co.'s No. 20 Willard, 4,996-5,220 ft., 1,006 bbl. Mabee Oil & Gas Co.'s No. 22 Willard, abandoned location. Mabee Oil & Gas Co.'s No. 2-C Willard, 4,890-5,165 ft., 1,731 bbl. Oil Development Co.'s No. 3-701 fee, 4,875-5,200 ft., 1,587 bbl. Osage Drilling Co.'s No. 5 Clawater, 5,011-5,235 ft., 649 bbl. Shell Oil Co., Inc.'s No. 13-C Baumgart, 4,903-5,178 ft., 1,160 bbl. Shell Oil Co., Inc.'s No. 2 Johnson, 4,995-5,251 ft., 714 bbl. Texas Pacific Coal & Oil Co.'s No. 28 R. Bennett, 5,040-5,225 ft., 1,822 bbl.

WEST CENTRAL TEXAS

FORT WORTH, Tex., Mar. 11.—After a noticeable slack in development during the winter months, Palo Pinto lime wildcatting in Jones County is rapidly nearing its high mark of last summer. In spite of the fact that only meager results were obtained from the entire past year's wildcat efforts, new locations projected to this lime horizon continue to be staked.

During the past week drilling was commenced just southwest of the Griffin field. It was started by C. W. Byron and others' No. 1 L. B. Gray, 467 ft. from the north and west lines S½ NW Section 25, Deaf and Dumb Asylum Lands Survey. It is about 2 miles southwest of the Griffin field which produces from the Palo Pinto lime. The test well last reported drilling below 200 ft. toward the completion of a 3,300-ft. contract.

About 4 miles northwest of this location and 3½ miles west and north of the Griffin field, F. O. Aiken is preparing to start a new Palo Pinto lime test. It will be in the Caton farm, Section 7, Deaf and Dumb Asylum Lands Survey. Contract depth is 3,350 ft. and rigging up is scheduled for this week.

About 4 miles southwest of the Aiken location, Iron Mountain Oil Co. is below 100 ft. in its Palo Pinto lime test on the Wiley lands, C SE SE SW Section 14, Deaf and Dumb Asylum Lands Survey.

Two miles south of the Iron Mountain wildcat is J. E. Farrell's No. 1 Reid, SW SW Section 31, Deaf and Dumb Asylum Lands Survey. This wildcat, also seeking production from the Palo Pinto lime, was last reported drilling below 2,000 ft. Both the Farrell and the Iron Mountain company wildcats are west of dry

holes drilled to the Palo Pinto lime by G. M. Gillespie and Jones & Stasney, respectively.

Attracting the most attention in the wildcat play during the past 3 weeks has been the well of Erin Petroleum Co. on the Caton lands, NW cor. NE¼ Section 4, Orphan Asylum lands, about 4½ miles south of the Griffin field and about 2 miles southeast of the Gillespie dry hole drilled last summer. A producer has been looked for from this wildcat, but results of the last test dim expectations. After plugging back to 3,390 ft. from a total depth of 3,404 ft., sulfur water was found with no oil showing. The well was previously reported to have shown an estimated 3 bbl. of fluid hourly, 50 per cent oil.

Other new Palo Pinto lime tests for widely separated areas of the county include the recently staked W. I. Southern's No. 1 Hayden, 4,000-ft. lime test in the G. Martines Survey just north of the Hawley field and about 3 miles north and slightly west of the town of Hawley. Machinery was being rigged up as the week closed.

In the western part of the county and west of Hawley, Humble Oil & Refining Co. is still fishing for bit at 1,616 ft. in its Palo Pinto lime test on the Ed Clift lands, Ambrose Cain Survey 214.

In the southeastern corner of Jones County, on the west side of the Sandy Ridge field, Roberts and Owens-Snebold's No. 1-A Jefferys, NE¼ Section 7, Block 15, T.&P. Survey, was drilling ahead after having passed up a slight show of oil at 3,478 ft. and at 3,635 ft. The wildcat is now drilling below the Palo Pinto lime and is an exploratory hole, the deepest ever drilled in the immediate area.

Stephens County

The Fagg area of Stephens County, opened late last year by George E. Fagg, Fort Worth, has been given another outpost location between the Fagg discovery well, which is a mile to the south, the C. F. Greenwood extension producer completed recently ½ mile to the northeast and the Panhandle Refining Co.'s active extension test in the Frank Magers farm. The new test is contracted to 4,000 ft. and is in Section 3, Block 3, S.P. Survey.

Parker County

First activity in several months was reported for Parker County when E. R. Marchman, manager of the Gratex Refining Co., of Graham, and associates staked location for a 3,500-ft. wildcat in the northeastern part of the county. It is No. 1 G. W. Keeling, in the F. Lindley Survey, Abstract 829. The wildcat is on a block of about 8,000 acres and is 1½ miles west of Springtown.

WEST CENTRAL TEXAS COMPLETIONS

Brown County

In the Cross Cut field Forester's No. 1 Trammell, F. D. Stewart Survey, 1,460-65 ft., 15 bbl. Tyler & Curry's No. 1 Nance-Geren, T. J. Swindle Survey, 1,125-37 ft., 5 bbl.

In the Byrd Store field Wilson's No. 1 Bowden, W. E. Gilliland Survey 138, junked and abandoned at 2,155 ft.

Callahan County

In the Snyder field C. J. Kleiner's No. 1 Williams, Section 2, T.&N.O. Survey, dry and abandoned at 975 ft.

Comanche County

In the Amity field Howard and others' No. 4 Smith, Section 18, Lampasas County School Lands Survey, dry and abandoned at 430 ft.

Jones County

In the Griffin field Bert Fields' No. 4 Barnard, Section 199, B.B.B.&C. Survey, dry and abandoned at 3,296 ft.

In the Lewis field Danciger Oil & Refining Co., Inc.'s No. 1 Springfield Bank, Section 36, Block 15, T.&P. Survey, 1,871-83 ft., 80 bbl. W. H. Peckham's No. 13 Brock, Section 36, Block 15, T.&P. Survey, 1,874-80 ft., 362 bbl. Sandy Ridge Oil Corp.'s No. 1 Brock, Section 33, Block 15, T.&P. Survey, 1,893-95 ft., 275 bbl.

Shackelford County

In the Huskey field J. P. Alexander's No. 1 Blanton, Section 552, T.E.&L. Survey, dry and abandoned at 600 ft.

In the Cook field Roeser-Pendleton's No. 4-B-113 Cook, Section 113, E.T. Survey, 1,558-70 ft., 475 bbl.

In the Ivy field Owens-Snebold Oil Corp.'s No. 1 Swenson, Section 163, B.B.B.&C. Survey, 3,195-3,262 ft., 40 bbl.

PANHANDLE COMPLETIONS

(24-hour gage)

Carson County

Magnolia Petroleum Co.'s No. 71 fee, 3,025-95 ft., 113 bbl. Magnolia Petroleum Co.'s No. 72 fee 244, 3,035-75 ft., 319 bbl. Shell Oil Co., Inc.'s No. 7-A E. Cooper, 3,175-3,224 ft., 323 bbl.

Gray County

King Oil Co.'s No. 4 Donkin, 3,165-3,245 ft., 44 bbl. Skelly Oil Co.'s No. 105 Schafer, 3,200-3,285 ft., 406 bbl. King Oil Co.'s No. 13 N. Vollmert, 3,190-3,285 ft., 492 bbl.

Hutchinson County

Texas Plains Oil Co.'s No. 11 Watkins, 2,840-2,935 ft., 94 bbl. Phillips Petroleum Co.'s No. 2 Erie, 2,950-3,003 ft., 396 bbl. Texas Co.'s No. 19 Lewis, 2,875-2,950 ft., 250 bbl. J. M. Huber Petroleum Corp.'s No. 2 Herring, gaged 11,500,000 cu. ft. of gas. J. M. Huber Petroleum Corp.'s No. 4 Herring, gaged 5,150,000 cu. ft. of gas.

Gulf Coast Fields

(Continued from Page 75)

ft., 455 bbl., ¼-in. choke. Stanolind Oil & Gas Co.'s No. 2 Davis, 5,576 ft., 456 bbl., ¼-in. choke.

Jefferson County

Lovells Lake field: Humble Oil & Refining Co.'s No. 4-B Steinhagen, perforated casing 7,722-23 ft., 116 bbl., ⅛-in. choke. West Beaumont field: Stanolind Oil & Gas Co.'s No. 12 McCormick, perforated casing 5,386-90 ft., 122 bbl., ⅛-in. choke.

Liberty County

Hardin field: Humble Oil & Refining Co.'s No. 16-A Partlow, 7,620 ft., 384 bbl., ¼-in. choke.

Polk County

Segno field: J. K. Dorrance's No. 5-A Wing, 8,165 ft., 366 bbl., ¼-in. choke. Gulf Oil Corp.'s No. 29 Wing, sand 8,043-65 ft., 627 bbl., ¼-in. choke.

Tyler County

Spurger field: Republic Production Co.'s No. 33 fee, sand 7,679-7,710 ft., 441 bbl., ¼-in. choke.

Wharton County

Withers field: Pan American Production Co.'s No. 1 Halamicek, 5,550 ft., 107 bbl., ¼-in. choke.

Southwest Texas Fields

(Continued from Page 81)

193 bbl., ¼-in. choke. Sinclair Prairie Oil Co.'s No. 7 State, perforated casing 5,627-34 ft., 97 bbl., ⅛-in. choke. Plymouth field: Plymouth Oil Co.'s No. 112-C Welder, perforated casing 5,647-52 ft., 128 bbl., ⅛-in. choke.

Starr County

Rincon field: W. R. Davis, Inc.'s No. 9-B Slick, perforated casing 3,727-32 ft., 183 bbl., plus 24 per cent salt water, Sun field: Sun Oil Co.'s No. 2 Lopez, perforated casing 4,958-75 ft., 151 bbl., ⅞-in. choke.

Victoria County

Heyser field: Gulf Oil Corp.'s No. 31-B Traylor, perforated casing 5,475-94 ft., 360 bbl., ¼-in. choke. Barnsdall Oil Co.'s No. 1 Marberry, sand 4,407-13 ft., 83 bbl., 9/64-in. choke.

Webb County

Adami field: Arkansas Fuel Oil Co.'s No. 6-B Adami, sand 9,900-95½ ft., 10 bbl., pumping. Humble Oil & Refining Co.'s No. 1 Yeater, 1,002 ft., 20 bbl. oil plus 50 per cent water, pumping. F. G. Lawson and others' No. 1 Adami, sand 977-84 ft., 44 bbl., pumping. F. G. Lawson's No. 2 Adami, sand 978-85 ft., 43 bbl., pumping. Bruni field: V. G. Schimmel's No. 1 Bruni, 2,561 ft., dry and abandoned. Volpe field: Magnolia Petroleum Co.'s No. 23 Volpe, sand 2,478-83 ft., 120 bbl., ¼-in. choke.

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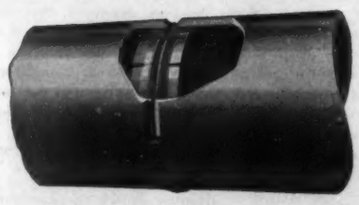

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North and East Texas

By
D. H. STORMONT

Big Well Opens Second Deep Pool in 2 Weeks in Montague

WICHITA FALLS, Tex., Mar. 11.—A wildcat blew in at the rate of approximately 300 bbl. hourly or more than 7,000 bbl. daily in the past week to open the second deep oil pool within as many weeks in Montague County. This wildcat, together with Sinclair Prairie Oil Co.'s discovery the week before has thrown open a lease play for the county rivaled only by the early days of K.M.A. and Hull-Silk.

Adding materially to the exploration in North Texas were reports of new locations in several of the one-well fields discovered recently in Clay and Montague counties and reports of two new deep wildcats in Archer County and a new 8,000-ft. Ordovician wildcat in Wilbarger County.

Montague County's newest field opened is W. B. Omohundro's No. 1 Seay, NW cor. S½ N½ Section 32, Block 4, H.&T.C. Survey, about ¾ mile east of the Clay County line and 4 miles south of Ringgold. The wildcat topped the Caddo lime of the upper Bend series of lower Pennsylvanian at 5,654 ft. and drilled a saturated sandy conglomerate from 5,690 to 5,704 ft., total depth. The hole was conditioned and a test started. The well commenced to show gas in 3 minutes and started flowing oil through the drill pipe in 21 minutes. Some sources reported that for 5 minutes after well started to flow, it made a solid stream of oil through the drill pipe before being shut in. Tanks for storage are being erected preparatory to taking official gage this week. The pay section is believed to be the same found in Sinclair Prairie Oil Co.'s new field opener some 30 miles to the east. The well opens the deepest oil-producing area in North Texas.

Two new locations promise rapid development of the Sinclair Prairie field just southwest of Bonita and in Montague County. With the discovery well gaged only last week, an offset has been staked and an outpost has been made in the Bonita townsite. The Sinclair Prairie company has offset its discovery on the west with No. 1 David Doty, a 5,500-ft. rotary test to be drilled 1,480 ft. from the south and 420 ft. from the east lines of the J. N. Jones Survey, Abstract 396.

The new town-lot location was made by F. K. Williford and T. C. Rose for No. 1 Goldsmith, a 5,250-ft. rotary test in Block 13, Wallace Survey, in the town of Bonita. The Sinclair discovery well was completed for 254 bbl. of oil in 3 hours or at the rate of 2,032 bbl. daily.

New Wildcat Locations

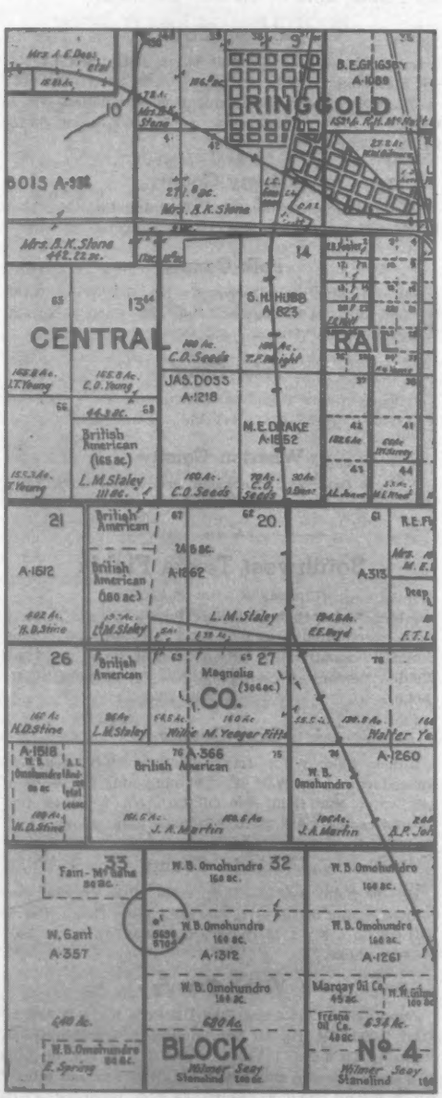
Location for a 5,000-ft. wildcat was made near the town of Mergargel in Archer County. Frank Hodgins assembled a block of about 2,000 acres some 7 miles east of Mergargel and is reported obligated to drill a 5,000-ft. test. The block centers around the J. Scott Survey, Abstract 374. No test below 3,600 ft. has been drilled in the immediate area.

A new Strawn sand wildcat for southeastern Archer County was seen when Paul Steed and E. L. Wilson, both of Dallas, staked tentative location for No. 1 Frank Prideaux, C NE SW Block 1867, T.E.&L. Survey. It is contracted to 4,000 ft. and will seek the stratum found productive in Shell Oil Co., Inc.'s discovery well in southwestern Clay County about 8 miles to the east, and slightly south.

Deepest test ever drilled in North Texas is scheduled to start this week in northern Wilbarger County. It is Amerada Petroleum Corp.'s No. 1 Goodpasture, 466 ft. from the south and west lines of Section 35, Block 15, H.&T.C. Survey, 2 miles northwest of Fargo. It is contracted to drill to the Ellenburger lime, expected at about 8,000 ft. The location is about 2 miles northwest of a wildcat drilled several years ago to 6,612 ft. and which failed to find the Ellenburger. The wildcat is approximately 15 miles west of Arbuckle lime production in Tillman County, Oklahoma.

New Field Development

In Clay County Continental Oil Co. has staked two offset locations to its No. 1 O. O. Ross, which opened a new producing area several weeks ago in the west central part of the county. The company's No. 1 J. D. Avis is located 440 ft. from the south and east lines of Lot 30, Rains C.S.L. Survey, a west offset to the discovery well. No. 1 O. A. Ross is located 440 ft. from the north and east lines of Block 8, J. Wyont Survey, Abstract 902, a south offset to the Avis location and a southwest offset to the discovery. The Avis location will be drilled first. No. 1 Ross, discovery well, was completed for 261 bbl. in 11 hours from the Caddo lime from 5,350 to 5,400 ft.



Heydrick Mapping Co., Wichita Falls

Coming in for an estimated 300 bbl. hourly, W. B. Omohundro's No. 1 Seay, wildcat in the extreme western part of Montague County, opened that county's second deep Caddo lime oil pool within the past 2 weeks

New activity was seen for the area surrounding the Shell company's No. 1 Henderson, new discovery in extreme southwestern Clay County. With offsets either drilling or preparing to drill, the Shell Oil Co., Inc., announced final gages on its No. 1 Henderson. The well made 287 bbl. of oil in 24 hours from a total depth of 3,533 ft. It was gaged on the pump and showed 5 per cent basic sediment and water in addition to the oil.

One mile northwest of the Shell discovery L. T. (Bobby) Burns is drilling ahead at No. 1 J. G. Mullens, Section 2617. The test was last reported below 3,502 ft. in lime, with no showing yet reported.

Shell Oil Co., Inc., announced location for No. 2 Henderson, 1,871 ft. from the north and 1,601 ft. from the west lines of Section 2605, T.E.&L. Survey. It is 933 ft. southeast of the field opener.

NORTH TEXAS COMPLETIONS

Archer County

Cato Oil Co.'s No. 2 O. T. Anderson, 4,362-4,412 ft., 1,450 bbl. C. B. Christie and others' No. 4 J. A. Little B, 4,322-65 ft., 1,064 bbl. C. W. Clark's No. 1 D. D. Strange, 1,154 ft., dry. Continental Oil Co.'s No. 9 Wilson "McCrory," 4,294-4,373 ft., 1,586 bbl. Dillard and others' No. 3 A. P. Nichols, 4,324-90 ft., 736 bbl. Bert L. Ligon and others' No. 1 J. H. White A, 4,384-4,421 ft., 760 bbl. Petroleum Producers Co.'s No. 1 O. T. Anderson, 4,010-33 ft., 1,344 bbl. L. Sikes' No. 1 Mrs. M. M. Martin A, 4,399-4,414 ft., 1,440 bbl. Texas Co.'s No. 37 L. F. Wilson A, 4,358-91 ft., 720 bbl.

Baylor County

British American Oil Producing Co.'s No. 4 Mrs. M. E. Fowlkes, 2,533-38 ft., 604 bbl. Staton & Bunch's No. 1 Robertson County, 3,520 ft., dry.

Clay County

Bobby Burns' No. 4 E. H. Hamilton, 233 ft., dry. L. T. Burns' No. 1 W. R. Lyon, 1,436 ft., dry. E. N. Costley's No. 3 W. J. McInnes, 1,114-22 ft., 216 bbl. Dresser and others' No. 1 C. H. McClellan, 1,350 ft., dry. C. L. Ganaway's No. 2 L. F. Goetze, 227-37 ft., 6 bbl. Perkins & Cullum's No. 4 C. T. Taylor estate, 1,075-94 ft., 288 bbl. Perkins & Cullum's No. 5 C. T. Taylor estate, 1,374 ft., dry. Shell Oil Co., Inc.'s No. 1 H. Henderson, 3,506-40 ft., 287 bbl., pumping (wildcat).

Cooke County

Seitz, Comegys & Seitz's No. 2 John Luke, 1,278 ft., dry. Texas Co.'s No. 6 F. J. Truebenbach B, 978 ft., dry.

Jack County

Hanlon-Buchanan's No. 1 A. T. Smith, 3,710 ft., dry. Harper and others' No. 1 G. E. Winn B, 3,530 ft., dry. Steed & Cooper's No. 1 W. J. Mathis, 2,863-84 ft., 250 bbl. (wildcat).

Montague County

Benton & Holmes' No. 1 First National Bank, 4,078 ft., dry. Sinclair Prairie Oil Co.'s No. 1 B. H. Howard, 5,240-49 ft., 2,116 bbl. (wildcat). United Producers Co.'s No. 1 J. T. West, 3,915-28 ft., 60 bbl.

Wichita County

P. Browning's No. 1 G. R. Hoge, 900 ft., dry. Dorian & Mitchell's No. 11 S. Mitchell, 3,870-3,925 ft., 537 bbl. E.C. Oil Co.'s No. 24 Mrs. Anna Mangold, 3,775-3,822 ft., 824 bbl. J. E. Farrell's No. 29 J. L. and T. J. Waggoner C, 1,383-96 ft., 56 bbl. Grace & Wood's No. 6 W. H. Love, 654 ft., dry. C. A. Johnston's No. 1 J. H. Bentley, 1,433 ft., dry. C. A. Johnston's Nos. 2 and 3

J. H. Bentley, abandoned locations. C. A. Johnston's No. 1 E. F. Van Houston, 420 ft., dry. P. G. Lake, Inc.'s No. 6 Mary E. Reilly, 3,887-3,928 ft., 1,024 bbl. W. B. Omohundro and others' No. 1 L. N. Lochridge, 4,502 ft., dry. Ross Drilling Co. and King's No. 3 J. L. Waggoner, 3,816-81 ft., 240 bbl. Texas Co.'s No. 3 Fred Thom, 3,786-3,843 ft., 816 bbl.

Wilbarger County

Consolidated Oil Co.'s No. 1 G. B. Andell, Jr., 4,127 ft., dry. Hammon, Hanlon-Buchanan, Inc.'s No. 3 T. D. Owens, 3,188-98 ft., 792 bbl. King Oil Co.'s No. 10 W. T. Waggoner N, 1,420-35 ft., 25 bbl.

Young County

E. B. Fulton's No. 1 L. T. Burns, 1,223 ft., dry. Long & Ray's No. 3 G. A. Bills, 2,750-2,814 ft., 520 bbl. Long & Ray's No. 5 G. A. Bills, 2,755-2,812 ft., 525 bbl. Moran & Wotola's No. 17 W. B. Howard, 900-10 ft., 10 bbl. H. Zweifel's No. 2-A J. C. Vaughan B, 3,908-4,011 ft., 715 bbl.

EASTERN TEXAS

DALLAS, Tex., Mar. 11.—Production from the deep lower Trinity series reached a new high in eastern Texas during the past week as prospects were seen for a new Pettit lime field in Camp County about 50 miles north of Chapel Hill Pettit production. A lower Trinity wildcat was staked in Gregg County's deep Willow Springs gas and distillate area and possibility was seen for three new deep wildcats in Henderson County's deep Opelika gas field.

Centering the majority of attention in the district was the prospect of a new Pettit lime field in Camp County. H. S. Moss Oil Co., Dallas, was running oil string in its No. 1 Venters, S. Wright Survey, southeast of Leesburg. With a corrected total depth of 8,086 ft., the oil string was expected to be set about 2 feet off bottom and casing perforated for a test of the saturated porous section. Electrical survey showed approximately 47 ft. of pay, but little information has yet been released by the operator. The pay section is believed to be from 7,943 to 7,990 ft., the Pettit zone.

Considerable interest has been shown this Camp County wildcat for several months, it having first been started by W. C. McGlothlin as a Woodbine sand test, later taken over by H. S. Moss for deepening to the Paluxy sand and then, only 2 weeks ago, rigged up a third time for deepening to the Pettit lime. The operators' block is extremely checker-boarded, many companies and independents having bought into it to supply drilling funds. The test is on a 45-acre tract in the S. Wright Survey.

Gregg County

With intentions of securing a franchise from the city of Longview to supply it with gas, Roger Lacy, Longview, producer and refiner, announced early last week that he would drill a deep Trinity well in the Willow Springs field of south central Gregg County. The city commission late in the week, granted the franchise to Lacy, but United Gas Corp., which now supplies the city's gas needs, promptly issued a reduction in its rates amounting to some $34,440 annually to city residents. Mr. Lacy was given 30 days to decide whether or not he would attempt to operate in competition with United Gas Corp. With no intentions yet announced by Lacy, it is reported that derrick is up and material is being moved to the site of the well. It will be No. 1 Lacy estate, 3 miles southwest of Longview and ½ mile north of Humble and Gulf's discovery Trinity gas producer of 2 years ago. Location for the test is in a 220-acre tract in the S. P. Ford Survey. If drilled, the test will be the first of about three wells needed to meet the requirements of the franchise.

Opelika Area

Shamrock Oil & Gas Co. of Amarillo, associated with Lone Star Gas Co. of Dallas, has acquired the properties of Tide Water Associated Oil Co. and Seaboard Oil Corp. in the Opelika area of Henderson County, and plans to unitize the acreage and drill several more deep tests and also to erect a recycling plant with a capacity of 50,000,000 cu. ft. of gas daily. In the trade the Tide Water-Seaboard partnership turned to the two companies their approximately 8,500 acres of leases together with two gas-distillate wells and a small oil well. The new operating companies plan three more tests, the erection of the $350,000 recycling plant, a pipe line and other related work, all of which is estimated to total about $850,000. At present the two companies are seeking to unitize acreage preparatory to starting the three additional wells. Most of the development in gas areas in the district is on a unit basis with the cooperation of royalty owners. This is the second recent venture into recycling development for Lone Star Gas Co., it having joined with Trinity Gas Corp., Dallas, for such a unit in the Grapeland field of Houston County.

Chapel Hill Field

Discouraging results were obtained on a drill-stem test at Sun Oil Co.'s 2-mile south outpost to the Chapel Hill field in Smith County as the week closed, only mud having been recovered. The test was run with bottom at about 8,174 ft. in the Travis Peak sand and in 20 minutes the recovery was only 68 ft. of mud with no shows of oil. Pressure was only 40 lb. The outpost is Sun's No. 1 Huddle, Dickenson Survey, 2 miles south of the Hunt gas well and 4 miles south of Shell Oil Co., Inc.'s discovery oil well from the Pettit lime in the Chapel Hill district of Smith County. Operators were last reported reaming down to core ahead toward the Pettit lime.

EAST TEXAS FIELD COMPLETIONS
(1-hour gage)

Gregg County—Longview Area

Sun Oil Co.'s No. 16 E. C. Shoults, 3,599-3,625 ft., 35 bbl. Angus Wynne's No. 1 Stuckey-Thrasher, 3,550-60 ft., 60 bbl.

Gregg County—Kilgore Area

Overton Refining Co.'s No. 4-B I.&G.N., 3,544-62 ft., 30 bbl. C. R. Starnes' No. 53 A. Money, 3,714-29 ft., 10 bbl., pumping. Rudco Oil & Gas Co.'s No. 5 L. B. Morse, abandoned location.

EAST CENTRAL TEXAS COMPLETIONS
(24-hour gage)

Anderson County

In the Cayuga field J. R. Bunn's No. 1-C Royall-Cone, T. Bristow Survey, 4,002-30 ft., 500,000 cu. ft. of gas. Phillitop Oil Co.'s No. 3 Ware, T. Bristow Survey, 4,020-28 ft., 85,000,000 cu. ft. of gas. Tide Water-Seaboard's No. 1-B J. F. Duncan, T. Bristow Survey, 4,082-96 ft., 18,000,000 cu. ft. of gas.

Franklin County

In the Talco field Texas Co.'s No. 11 H. Baker, B. H. Epperson Survey, 4,275-87 ft., 182 bbl.

(Continued on Page 90)

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300-Bbl. Well Best of Dozen New Producers; Nine Dry

By OTTO C. PRESSPRICH

SAGINAW, Mich., Mar. 11.—With reduced new production coming in from the established fields, interest shifted to exploration in wildcat and semiproved areas last week, with attention mainly on possibilities in a test in the western part of the state. The wildcat, Crown Development Co.'s No. 1 Reimus in Section 34 of Ottawa County's Holland Township, 5n-15w, had a heavy showing of oil in the Traverse at around 1,520 ft. and the operators had hopes of the test turning into the first discovery of consequence this year. It had not had a production test.

Meanwhile there was a big letdown in Kent County, where the only oil completion was Wolverine Natural Gas Corp.'s No. 1 Burgess & Green in Section 32 of Walker Township, rating 100 bbl. a day. Two other Walker tests, one in Section 32, the other in 31, were abandoned as dry and failure climaxed an exploratory test in Section 33 of Kent's Caledonia Township, another in Section 28 of Cannon Township, still another in Section 3 of Grand Rapids Township, while two drilling locations in Wyoming Township were abandoned.

Allegan County continued to furnish southwestern Michigan new potential as Lentz & Miller completed a well good for 129 bbl. a day in Overisel's Section 27 and Wiser Oil Co.'s No. 2 Jurries in Overisel's Section 34 was good for 200 bbl. a day. Socony-Vacuum Oil Co. got a 75-bbl. well in Section 3 of Salem, but W. R. Borough's test in Section 2 was dry.

Development in Ottawa County's Tallmadge district featured four oil completions of from 25 to 300 bbl. a day. The 300-bbl. well, Smith Petroleum Co.'s No. 4 Masterson in Section 23, was the best of the week in Michigan. A 75-bbl. producer was completed in the Bloomingdale field of Van Buren County, but a Section 28 test in Columbia, immediately to the west, was abandoned as dry.

In Central Michigan areas disappointment mixed with new production, Clare and Isabelle County operations providing three producers toward the state total of 12 for the week. The five dry holes in Kent County were augmented by one failure in Allegan County, one in Missaukee County and the one in Van Buren. Two Berrien location tests were abandoned temporarily, as was one in Midland.

Cities Service Oil Co. placed two Isabella County wells in the production list with completion of No. 2 McNerney in Section 21 of Wise Township, getting 257 bbl. a day initially, and No. 2 Ramay in Section 28 of Wise, good for 192 bbl. a day. A half-dozen other tests were nearing the completion stage in the Wise pool and drilling was well along on seven or eight others. One failure was that of the Freeman Oil Co. in the Central Michigan basin. The test, No. 1 Merrill Palmer School in Section 36 of Lake Township, Missaukee County, drilled into water at 4,053 ft. in the Monroe after getting a gas showing in the Michigan stray and a trace of oil in Traverse limestone. Activity was temporarily abandoned in Midland's Greendale Township test made by Leo Schrott on the No. 1 Scott, Section 8, after the hole had been drilled to a depth of 3,539 ft.

Permits for 24 new wells were issued during the week by the state Conservation Department, bringing the total for the year to 221. The permits, including several for wildcat purposes, were divided by counties—Allegan 5, Ottawa 5, Isabella 4, Kent 3, Shiawassee 2, Barry, Berrien, Monroe, Kalamazoo, and Van Buren 1 each. Following is the summary of the week's 12 new producers, nine tests abandoned as dry and five locations either abandoned or temporarily shelved:

Allegan County

Overisel Township (4n-14w)—Lentz & Miller and others' No. 2-A John G. Berens, SW SE SE Section 27, completed at a depth of 1,564 ft., was producing 129 bbl. a day, after acid treatment. Wiser Oil Co.'s No. 2 Justin Jurries, SE NW SE Section 34, was good for 200 bbl. a day, initially, after acid treatment on completion at depth of 1,484 ft.

Salem Township (4n-13w)—W. R. Borough, Inc.'s No. 3 B. Fein, SE NW NW Section 2, was dry and abandoned after drilling to a depth of 1,716 ft. Socony-Vacuum Oil Co.'s No. 4 Howard Loew, NE SW SE Section 3, total depth 1,634 ft., produced 75 bbl. a day after acidizing.

Berrien County

Baroda Township (6s-19w)—E. K. Emlong temporarily abandoned No. 1 Ora Mead, C N½ S½ S½ Section 15, with the test at a depth of 410 ft.

Buchanan Township (7s-18w)—D. Niccum and A. Friske, trustee, abandoned location for No. 1 H. and I. Krieger, SE NW SW Section 8.

Clare County

Redding Township (19n-6w)—J. V. Wicklund Development Co.'s No. 1 L. G. Feil, C N½ NE SE Section 33, had initial after-acid production of 230 bbl. a day, depth of the well being 3,908 ft.

Isabella County

Wise Township (16n-3w)—Cities Service Oil Co. reported two new wells, No. 2 B. McNerney, NW SW SW Section 21, being good for 257 bbl. a day from the 3,713-ft. depth, after the test was acid-treated, and No. 2 Thomas Ramay, SE SW NW Section 28, rating 192 bbl. a day after acid application, well depth being 3,711 ft.

Kent County

Caledonia Township (5n-10w)—C. J. Neal's No. 1 Dotzert heirs, NE NE SE Section 33, was completed dry at a depth of 2,047 ft.

Cannon Township (8n-10w)—North American Drilling & Producing Co. abandoned No. 1 William Lamoreux, SW SW NW Section 28, finding no oil to a depth of 2,258 ft.

Grand Rapids Township (7n-11w)—D. D. Battjes' No. 1 City of Grand Rapids, NE NW NE Section 3, was dry and abandoned at 2,588 ft.

Walker Township (7n-12w)—Wolverine Natural Gas Corp.'s No. 1 Burgess & Green, NE NE NW Section 32, was good for 100 bbl. a day after being acid-treated, the well's depth being 1,904 ft., but Voorhees Drilling Co.'s No. 3 L. M. Story, SW SW SW Section 32, was abandoned as a dry hole after being drilled to a depth of 1,927 ft. Also dry and abandoned was Wolverine Natural Gas Corp.'s No. 1 Ed Whalen, SE SE SE Section 31, the test going to 2,140 ft.

Wyoming Township (6n-12w)—Davell Petroleum Co., Inc., temporarily abandoned No. 1 H. Fred Collins, NE NW NE Section 23, with the test at the 1,919-ft. level and abandoned location, SE SW NE Section 23, for No. 1 Eberhard & Collins.

Midland County

Greendale Township (14n-2w)—With the test down 3,539 ft., Leo S. Schrott temporarily abandoned activity on No. 1 Emmet Scott, NE SE NW Section 8.

Missaukee County

Lake Township (22n-8w)—Freeman Oil Co.'s No. 1 Merrill Palmer School, C S½ SE SW Section 36, was a failure, the test abandoned as a dry hole after drilling had gone to a depth of 4,053 ft.

Monroe County

Dundee Township (6s-6e)—Clapsaddle, Harris & Fulton's No. 1 Edmund Reaume, NW NE SW Section 20, was abandoned at 2,462 ft.

Ottawa County

Tallmadge Township (7n-13w)—Smith Petroleum Co.'s No. 4 John S. Masterson, NW SE SE Section 23, rating 300 bbl. a day after acid treatment, was the best of the week's new wells. Its depth is 1,881 ft.

Three smaller producers were completed in the same section, the Smith Petroleum No. 1 Masterson, SW SE SE, yielding 25 bbl. after acid treatment, from 1,885 ft., and Edward B. Strom, trustee's No. 1 Masterson, completed at 1,890 ft., doing 75 bbl. a day after acid application. Basin Oil Co. and others' No. 1-A John E. Connell, NW SW SE Section 24, rated 50 bbl. a day after acidizing from a depth of 1,908 ft.

Van Buren County

Bloomingdale Township (1s-14w)—Bloomingdale Development Co. completed No. 2 Babcock, NW NW NE Section 18, at 1,194 ft. for initial production of 75 bbl. a day after treating the test.

Columbia Township (1s-15w) — William E. Frude's No. 1 A. J. Allen, NE NW SE Section 28, was dry and abandoned at 1,181 ft.

Michigan severance tax collections in January increased $1,100 over December to a total of $45,421. While the state's oil production decreased a trifle—approximately 2,000 bbl., compared with December—the natural-gas output showed an increased of 285,000,000 cu. ft., to a total of 1,509,301,000 cu. ft. The tax is divided, 40 per cent to state, 40 per cent to the governmental unit in which each well is located, 20 per cent to the county of origin. Returns show Kent County the biggest oil producer in the state, the county and townships getting $5,750 for January oil production, trailed closely by Clare County and its townships, which divided $5,700. Other principal divisions: Allegan and its townships $3,200, Midland $2,430, Gladwin $1,580, Montcalm $1,400, Ottawa $1,350.

The Michigan Petroleum Association, taking issue with a proposal by Dr. C. W. Chamberlain, Michigan State College physicist, is campaigning to prevent a possible elimination of the state's 3 per cent evaporation allowance in connection with gasoline payments. Chamberlain argued that improved handling methods have reduced evaporation losses to less than 3 per cent, but J. D. Hadley, executive director of the association, countered with a claim the allowance is not enough and that the amount fails to cover expenses of dealers in collecting the tax. The total involved is about $300,000 on an annual sales tax collection of $30,000,000.

The Michigan Conservation Department has leased another 25,000 acres of state-owned lands for oil and gas development as established concerns purchased rights on two-thirds of a 34,500-acre auction, paying a total of $10,000 above the minimum privilege fees. Highest bonus was $5 an acre in Frost Township, Clare County, most of the sales being in Clare's Frost, Franklin, and Summerfield townships.

On part of the land at auction, the state sold leases under a conditional clause that the lease may be canceled provided the tax-delinquent land is reclaimed by former owners. About 9,200 acres of the total offered was land which may be resold to former owners in June.

Illinois Fields

(Continued from Page 62)

tion 20-3n-2e, Devonian top at 3,335 ft., pay at 3,382 ft.; better pay at 3,412-30 ft., 5,000 gal. of acid, flowed 720 bbl. through casing and tubing. Magnolia Petroleum Co.'s No. 90 J. H. Young, SW cor. Section 21-2n-2e, Devonian top at 3,350 ft., good pay at 3,426-45 ft., 5,000 gal. of acid, flowed 1,355 bbl. Magnolia's No. 38 S. Shanafelt, SW SE SW Section 29-2n-2e, Devonian top at 3,276 ft., pay at 3,322 ft., total depth 3,366 ft., 6,000 gal. of acid, flowed 3,120 bbl. Texas Co.'s No. 19 R. Shanafelt, SE NE NE Section 29-2n-2e, Devonian top at 3,338 ft., pay at 3,388-3,433 ft., 5,000 gal. of acid, flowed 343 bbl. in 3 hours, rated at 2,300 bbl. per day. Texas Co.'s No. 6 O. Telford, SE cor. NE¼ Section 29-2n-2e, Devonian top at 3,345 ft., pay at 3,391-3,427 ft., 5,000 gal. of acid, flowed 92 bbl. Magnolia Petroleum Co.'s No. 32 D. A. Shanafelt, NW SE NE Section 32-2n-2e, Devonian top at 3,344 ft., pay at 3,410-35 ft., 5,000 gal. of acid, flowed 4,045 bbl. per day. Shell Oil Co.'s No. 5-C E. T. Farthing, SW SW NE Section 32-2n-2e, Devonian top at 3,346 ft., pay at 3,416-34 ft., flowed 1,226 bbl. in 16½ hours naturally, acidized with 5,000 gal., it flowed 5,954 bbl. in 24 hours. Shell's No. 7-C E. T. Farthing, NE SW NE Section 32-2n-2e, Devonian top at 3,358 ft., pay at 3,424-46 ft., flowed 270 bbl. naturally in 7 hours, acidized with 5,000 gal., it flowed 3,719 bbl. in 24 hours. Texas Co.'s No. 9 E. Farthing A, NW NW SE Section 32-2n-2e, Devonian top at 3,353 ft., pay at 3,398-3,443 ft., 5,000 gal. of acid, flowed 1,682 bbl. per day. Texas' No. 23 N. Lee, NE NE NE Section 32-2n-2e, Devonian at 3,332 ft., pay at 3,380-3,415 ft., 5,000 gal. of acid, flowed 733 bbl. in 3 hours; rated at 5,130 bbl. per day. Texas Co.'s No. 8 H. MacRoberts, SW SE NE Section 32-2n-2e, Devonian top at 3,347 ft., pay at 3,394-3,436 ft., acidized with 5,000 gal., flowed 1,915 bbl. in 4½ hours, or at the rate of about 10,133 bbl. per day. Texas Co.'s No. 14 W. Richardson, NE NE SW Section 32-2n-2e, Devonian top at 3,314 ft., pay at 3,354 ft., best pay at 3,360-3,402 ft., acidized with 5,000 gal., flowed 1,517 bbl. per day.

In NE cor. NW Section 9-1n-2e, Texas Co. completed a Benoist sand well, No. 15 Bryant. It pumped 126 bbl. a day from sand at 1,858-78 ft.

In the Tonti pool, Marion County, Alsher & Booth's No. 6 McMahon, SW SW SW Section 34-3n-2e, topped Devonian lime at 3,485 ft., and pay at 3,522-46 ft., flowed 22 bbl. per hour naturally. Acidized with 2,500 gal., it flowed 2,424 bbl. in 24 hours through a ¾-in. choke.

A. J. Jones and Deator's No. 2 Majonnier, SW NE SW Section 28-4n-1e, in the Patoka pool, was a Devonian lime failure. It was acidized with 500 gal. at 2,944-48 ft. and tested only water. Top of the lime was at 2,886 ft.; total depth 2,956 ft.

In the Clinton County side of the Centralia field Newton & Ward's No. 1-A F. Gross, SE SE SW Section 5-1n-3w, had Devonian lime at 2,387-99½ ft. It pumped 163 bbl. of oil per day. C. Andrade's No. 1 M. Pullen heirs, NW cor. SW SE NE Section 13-1n-1w, Devonian pay at 2,910-15 ft., acidized with 2,500 gal., flowed 581 bbl. of oil per day. Egyptian Refining Co.'s No. 1 Gertkemper, SW cor. SE NE SE Section 13-1n-1w, Devonian pay at 2,898-2,904 ft., 2,000 gal. of acid, flowed 225 bbl. of oil per day. J. B. Allen's No. 1 Bucholz, SE SE NE Section 13-1n-1w, Devonian pay at 2,905-13 ft., 2,000 gal. of acid, flowed 380 bbl. of oil per day.

In Jefferson County S. W. McGee's No. 2 Koster, SE NE NE Section 90-1s-1e, made a 68-bbl. pumper in Benoist sand at 2,075-86 ft.

In Wayne County A. L. Steingle's No. 1 Hilliard Consolidated, C N½ NW SE Section 34-1s-7e, had Fredonia lime pay at 3,255-57 ft. and 3,281-87 ft., was acidized with 3,000 gal. and flowed 226 bbl. of oil in 12 hours, pinched in. Oil Well Drilling Co.'s No. 7 D. A. Hilliard, C S½ SE SW Section 27-1s-7e, Fredonia pay at 3,297-99 ft., and 3,299-3,301 ft., pumped 121 bbl. per day. Ozier and others' No. 1 Accola, NE NE

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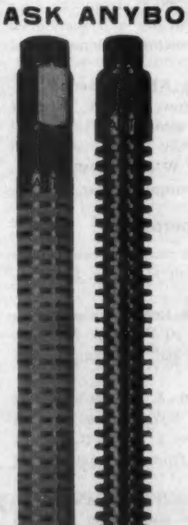

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NE Section 31-2s-6e, was dry and abandoned at 3,300 ft. Texas Co.'s No. 2 Poorman, NW NE SE Section 31-3s-8e, total depth 3,407 ft., plugged back to 3,279 ft., and pumped 154 bbl. of oil and 18 bbl. of water from pay at 3,220-30 ft., Aux Vases sand.

In Wabash County Burr Lambert's No. 1 Bucholz, SW cor. NE¼ Section 9-2s-13w, Cypress sand at 2,420-29 ft., shot with 20 qt. on bottom, pumped 83 bbl. per day. Continental Oil Co.'s No. 1 H. M. Dague, NW NE NW Section 20-2s-13w, Cypress sand at 2,464 ft., total depth 2,481 ft., pumped 164 bbl. per day. Halsted Oil Co.'s No. 2 Allen Gray, SE NW SW Section 29-2s-13w, Cypress sand at 2,479-85 ft., shot with 5 and 10 qt., pumped a rainbow of oil, abandoned.

In Washington County Shell Oil Co.'s No. 12 Sharkowski, SW NW NE Section 23-3s-3w, Cordes pool, was a 21-bbl. well from Benoist sand at 1,258-80 ft., shot with 20 qt. It also pumped 16 bbl. of water per day.

In White County Phillips Petroleum Co.'s No. 1 Cleveland, NE SE NE Section 36-4s-10e, was dry and abandoned at 3,095 ft., 41 ft. in Fredonia lime. J. B. Barbes' No. 1 Martin, C W½ NW SW Section 7-6s-9e, pumped 30 bbl. of oil and 15 bbl. of water per day from McClosky lime at 3,055-3,100 ft., acidized with 1,800 gal. Eason's No. 1 N. Storms A, SE SW SE Section 11-6s-9e, Waltersburg sand at 2,260-84 ft., flowed 393 bbl. per day, naturally. Eason & Angle's No. 4 N. Storms, NW SE SE Section 14-6s-9e, Waltersburg sand 2,256-67 ft., flowed 180 bbl. a day, naturally. Eason & Angle's No. 5 Storms, NE SW SE Section 14-6s-9e, Waltersburg at 2,230 ft., total depth 2,269 ft., flowed 280 bbl. naturally in 24 hours. L. F. Boone's No. 1 Storms, SE SW NW Section 23-6s-9e, was completed as a 500,000-cu. ft. gas well in Waltersburg sand at 2,211-69½ ft. Exchange Oil Co. and Ohio Oil Co.'s No. 2 Rudolph, SW NE NE Section 14-6s-9e, Waltersburg sand at 2,239 ft., was dry and abandoned at 2,335 ft. Roberts Brothers' No. 1 Barcroft, SW cor. NE SW NW Section 25-6s-8e, was dry and abandoned at 3,100 ft. after penetrating McClosky lime topped at 3,058 ft.

In Gallatin County Exchange Oil Co.'s No. 1 Kensling, NW SW NW Section 7-8s-9e, was dry and abandoned at 3,060 ft. after penetrating St. Louis lime topped at 3,000 ft.

Johnson's No. 1 Nichols, a Marion County wildcat, 520 ft. from the north line and 200 ft. from the west line of NE¼ Section 19-3n-1e, was dry and abandoned at 1,466 ft. It had a small oil showing in Benoist sand topped at 1,459 ft.

Olson's No. 1 Madding, C S½ NE NW Section 12-2n-7e, Clay County, deepened from 3,083 ft. to 3,161 ft. and acidized with 2,000 gal., pumped 60 bbl. of oil and 17 bbl. of water per day. Pure Oil Co. completed a core-hole test at 3,300 ft. in C W½ SW NW Section 35-1n-8e, drilled purely as a stratigraphic test.

New Wildcat Operations

In Macon County S. D. Jarvis made a location for No. 1 Veech, C SE SE NE Section 11-16n-3e, a Devonian lime test.

In Crawford County Dorning & Leaser were rigging up rotary for No. 1 Ducommun, C N½ NW NW Section 31-6n-12w, of second principal meridian, a Devonian lime test.

In Clinton County Thompson & Freeze's No. 1 Brandhorst, SE NE NE Section 3-1n-2w, was drilling at 350 ft. O. W. Burroughs' No. 1 Kurlhoff, 660 ft. from the south line and 79 ft. from the east line of SW¼ Section 2-1n-2w.

In Jefferson County Gibson & Jennings rigged up standard tools for No. 2 Charles Hall, 1,100 ft. from the south line and 200 ft. from the east line of NW¼ Section 36-2s-1e. Rodger C. Young was moving in rotary for No. 1 Whittington, SE SE SW Section 30-4s-3e.

In Monroe County Hughes Petroleum Co.'s No. 1 Meyer, old total depth about 1,100 ft., moving in material to deepen. This well was already geologically deep, as Ordovician lime was topped at 745 ft. and Kimmswick lime at 855 ft.

OHIO

Completions in the past week in Ohio fields covered by this report number 16, including 8 gas wells, 7 dry holes, and 1 small oil well.

In Athens County, Troy Township, H. M. Ridgeway's No. 1 M. C. Johnson, Section 35, was abandoned at 1,325 ft.

In Belmont County, Somerset Township, Barnesville Development Co.'s No. 1 William Calvert, Section 21, had a small gas show in the Berea and was abandoned, total depth 1,883 ft.

In Knox County, Butler Township, Brooks Johnson and others' No. 3 Devilla Bricker, Section 5, is a gas well good for 2,000,000 cu. ft., open flow, from Clinton sand at 2,884-97 ft.; Ohio Fuel Gas Co.'s No. 1 W. F. Mitchell, Section 5, found the Clinton sand dry and was abandoned at 2,859 ft.

Five gas wells were completed in the Newark field, Licking County. In Madison Township J. T. Bebout's No. 2 B. F. Bourne, Section 4, gaged 550,000 cu. ft. of gas from Newberg sand at 2,187-2,211 ft. In Mary Ann Township Ohio Fuel Gas Co.'s No. 1 H. B. Hughes, Section 5, has an open flow of 590,000 cu. ft. from the Clinton at 2,552 ft. In Newark Township National Drilling Co.'s No. 1 Winifred Owen, Lot 3, second quarter, is good for 500,000 cu. ft., open flow, from Clinton sand at 2,304-36 ft. In Newton Township Ohio Fuel Gas Co.'s No. 1 Willie Mahary gaged 720,000 cu. ft. from the Clinton at 2,703 ft. In Eden Township C. A. Davis and others' No. 1 C. G. Woodruff, Section 5, made 120,000 cu. ft., open flow, from the Newberg at 2,152-60 ft.

In Medina County, Litchfield Township, Wiser Oil Co.'s No. 1 Alfred Chandler, Lot 8, was dry through the Clinton to 2,651 ft.

In Morgan County, Marion Township, W. S. Harris' No. 1 Evalyn Worthington, Lot 13, gaged 520,000 cu. ft. of gas from Salt sand at 998 ft. In York Township Gas Producing Co.'s No. 1 Montville Rambo, Section 22, was dry in the Clinton, and Medina sands, total depth 3,911 ft.

In Muskingum County, Hopewell Township, Atha Co.'s No. 1 Phillip Keffer, Section 14, was dry, total depth 3,510 ft.

In Noble County, Jefferson Township, L. A. Patten's No. 12 Charles Shilling, Section 9, is a small pumper in the Berea at 1,750-54 ft.

In Washington County, Barlow Township, R. W. Porter and others' No. 2 Charles Male is a small gas well in the Maxton sand at 1,383 ft. In Wesley Township Eichorn and others' No. 1 F. M. Gill, Section 32, found the Berea dry, total depth 1,803 ft.

Oklahoma Fields

(Continued from Page 78)

Johnson's No. 2-F Hayden, NE NW NW Section 6-18-10, was bottomed at 2,249 ft., plugged back and shot without result, and was dry and abandoned.

Midco Oil Corp.'s No. 1 Bruner, C N½ NW SW Section 29-17-11, was completed for 2,500,000 cu. ft. of gas daily at 2,410 ft., total depth.

Bryan Petroleum Co.'s No. 2 Willowby, NW NW NE SW Section 22-18-9, was bottomed at 3,181 ft. and produced 3,000,000 cu. ft. of gas daily.

Tulsa County

Jim Moore's No. 1-A Griffith, NW SW SW SW Section 13-17-12, Tulsa County, produced 3,000,000 cu. ft. of gas daily at total depth of 1,856 ft.

A. Peppis' No. 5-A Bishop, SW SW SE SW Section 35-19-12, twin well, was dry and abandoned at 1,504 ft., total depth.

Okmulgee County

Minshall and others' No. 2 Simms, NE NW SW Section 33-16-11, Okmulgee County, recently was completed for an estimated 2,000,000 cu. ft. of gas at 2,056 ft., total depth.

Selby Oil Co.'s No. 12 Flint, C SE NW Section 26-14-14, was completed at 1,022 ft., total depth, for 14 bbl. of oil daily.

J. E. Dow's No. 1 Rogers, SW SW NE Section 33-15-14, was a 15-bbl. oil well at total depth of 1,622 ft.

Wagoner County

Jim Joseph's No. 1-A Porter, C S½ S½ NE SW Section 23-17-15, Wagoner County, was completed for 3 bbl. of oil daily at 1,047 ft., total depth. Gardner and others' No. 3 Rittenhouse, SW SE NW Section 16-17-17, produced 500,000 cu. ft. of gas at 777 ft., total depth. Southwestern Oil Co.'s No. 1-A Scriba, SE NE SE Section 25-17-17, was dry and abandoned at 754 ft. C. K. Minter's No. 1-A McClure, Section 12-18-17, was good for 2 bbl. at 255 ft.

Washington County

Midland Corp. and others' No. 2 Barnes, C E½ NW NE Section 21-25-13, Ochelata district, Washington County, topped Oswego lime at 670 ft., had pay at 675-683 ft., and produced 2,500,000 cu. ft. of gas daily.

Same operators' No. 1 Barnes, NE NE NW Section 21-25-13, completed in the spring of 1938, found 350,000 cu. ft. of gas in Prue sand at 800 ft. and 550,000 cu. ft. of gas in chat at 1,386 ft. It was drilled to Arbuckle lime at 1,840 ft., had a hole full of water and plugged back to 1,400 ft. to complete.

Osage-Kay Counties

Barnsdall Oil Co.'s No. 8 Osage, NW SW NE Section 23-24-10, Osage County, was completed at 1,868 ft., total depth, for 5 bbl. of oil daily.

Shell Oil Co.'s No. 7 Laurence, NW SE NW Section 5-28-1w, Braman pool, Kay County, produced 98 bbl. of oil in 24 hours and was completed at 2,793 ft., total depth.

Garfield County

Sinclair Prairie Oil Co.'s No. 10 Kisner, NE SW SE Section 36-22-4w, Graber field, Garfield County, had Cruse sand at 2,264-74 ft., total depth, and was dry and abandoned.

Carter County

Sinclair Prairie Oil Co.'s No. 16 Holman, NW NE NW Section 16-4s-3w, Healdton field, set 7-in. pipe at 1,241 ft., was bottomed at 1,291 ft., and pumped 15 bbl. of oil in 16 hours, pumping off.

In Garvin County Winkler & McQueen's No. 2 Ellis, NW NE NE Section 32-1n-3w, was a location. Starr Oil & Gas Co.'s No. 1 Shi, NW NW NE Section 8-4-3, was a location.

Southwestern Oklahoma

Jackson County completions: Kerbow's No. 1 Dora, SW SW SE Section 11-1n-20w, Altus field, temporarily abandoned at 1,470 ft. Vaughn's No. 8 Stokes, NE NW SW Section 11-1n-20w, temporarily abandoned at 830 ft. Same operator's No. 9 Stokes, SW NW SW Section 11-1n-20w, temporarily abandoned at 1,406 ft. Burnham and others' No. 4 Guyrman, C NW SW Section 14-1n-20w, bottomed at 1,473 ft., swabbed and flowed 74 bbl. of oil in 24 hours and pumped 64 bbl. in 24 hours. Same operators' No. 6 Summer, SE NW SE Section 6-1s-19w, Tipton area, pumped 60 bbl. of oil daily at total depth of 2,613 ft.

Stephens County completions: Burkhart's No. 2-C Spears, NW SW NW Section 15-1s-5w, Velma area, sand at 485-514 ft., total depth, pumped 3 bbl. of oil daily. Pace Petroleum Co.'s No. 2-A Parker, SW SW NE SE Section 11-2s-8w, total depth 2,102 ft., 2 bbl. oil daily. Same operator's No. 2-C Montgomery, NE SW NW SE Section 11-2s-8w, total depth 2,022 ft., dry and abandoned.

Gulf Oil Corp.'s No. 6 Edwards, SW SW SE Section 3-1n-20w, Jackson County, drilling below 1,171 ft. Magnolia Petroleum Co.'s No. 11 Harrison, SW SE NE Section 28-3-5w, Grady County, building rig. Ohio Oil Co.'s No. 7 Lackey, SW SE NW Section 11-5-9w, building rig. Trout's No. 1-B Trout, SE SE SW Section 19-6s-5w, Jefferson County, drilling below 1,075 ft.

East Texas Fields

(Continued from Page 87)

Henderson County

A wildcat, W. K. Manning's No. 1 Rowe & Baker, J. T. Childres Survey, 6 miles southwest of Mabank, dry and abandoned at 3,186 ft.

Houston County

In the Grapeland field American Liberty Oil Co.'s No. 1 G. L. Tyer, L. Carpenter Survey, abandoned location.

Limestone County

In the Groesbeck field M. Samuel's No. 2 Barron, W. G. McKenzie Survey, top Pettit at 5,594 ft., perforated casing from 5,622-41 ft., 5,656-74 ft., 5,690-5,700 ft., made 2,600,000 cu. ft. of gas.

A wildcat, Zephyr Oil Co.'s No. 3 C. Peeples, R. Scott Survey, 2 miles southwest of Tehuacana, dry and abandoned at 2,868 ft.

Navarro County

In the Flag Lake field S. N. Rown's No. 1 Trinity River bed, A. C. Kyser Survey, 2,986-94 ft., 503 bbl.

Red River County

A wildcat, Kansas-Oklahoma Oil Co.'s No. 1 R. H. Ringwald, A. Moore Survey, 3 miles west of Manchester, dry and abandoned at 955 ft.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status
Union Oil, No. 4 Le Roy, Santa Maria, Santa Barbara	13-10-35	2,382	sd. sh. drig.
Hamilton, W. C., No. 1 Hollister, Goleta, Santa Barb.	3- 4-29	1,342	O.S. drig.
T. O. Oil, No. 5 Mdivani, Mesa, Santa Barbara	28- 4-27	2,020	redrig. 1,570
Oil Group, No. 1 Hyland, Summerland, Santa Barb.	16- 4-26	1,570	sd. sh. drig.
Ohio Oil, No. 1 Vail, Moor Park, Ventura	10- 2-19	4,361	sd. sh. drig.
Savage Oil, No. 8 Calumet, Shiells Canyon, Ventura	3- 3-19	4,016	pump 50 b.d.
Continental Oil, No. 15 Grubb, San Miguelito, Vent.	24- 3-24	2,940	sd. sh. drig.
C. C. M. Oil, No. 6-B Hobson, Rincon, Ventura	17- 3-24	4,276	redrig. 3,404
C. C. M. Oil, No. 30-B Hobson, Rincon, Ventura	16- 3-24	4,740	O.S. drig.
C. C. M. Oil, No. 9-A Hobson, Rincon, Ventura	15- 3-24	4,430	sd. sh. drig.
Tide Water A. O., No. 43 V.L.W., Vent. Ave., Vent.	23- 3-23	9,475	hd. sh. drig.
Tide Water A. O., No. 45 V.L.W., Vent. Ave., Vent.	24- 3-23	7,693	sd. sh. drig.
Tide Water A. O., No. 17 McGonigle, Vent. Ave., Vent.	23- 3-23	5,941	sd. sh. drig.
Tide Water A. O., No. 119 Lloyd, Vent. Ave., Vent.	27- 3-23	5,292	sd. sh. drig.
Tide Water A. O., No. 122 Lloyd, Vent. Ave., Vent.	23- 3-23	9,465	flow 1,452 b.d.
Tide Water A. O., No. 18 Hartman, Vent. Ave., Vent.	22- 3-23	10,885	redrig. 9,435
Tide Water A. O., No. 21 Hartman, Vent. Ave., Vent.	22- 3-23	9,860	sd. sh. drig.
Shell Oil, No. 112 Taylor, Ventura Ave., Ventura	29- 3-23	7,520	flow 4,490 b.d.
Shell Oil, No. 113 Taylor, Ventura Ave., Ventura	29- 3-23	7,005	sd. sh. drig.
Shell Oil, No. 114 Taylor, Ventura Ave., Ventura	29- 3-23	1,963	sd. sh. drig.
Shell Oil, No. 115 Taylor, Ventura Ave., Ventura	29- 3-23	5,984	sd. sh. drig.
Cal. Alliance Pet., No. 2 Hartman, Vent. Ave., Vent.	22- 3-23	8,280	sd. sh. drig.
Cal. Alliance Pet., No. 1 Schmidt, Vent. Ave., Vent.	22- 3-23	1,455	sd. sh. drig.
Lloyd Corp., No. 4 Dabney, Ventura Ave., Ventura	23- 3-23	10,135	cleaning out
Trigg, H. C., No. 1 Den, Devils Den, Kern	11-25-18	483	fishing
Franco-Western Oil, No. 1 Front, McKittrick, Kern	8-30-22	1,699	sd. sh. drig.
Mid-State Pet., No. 1 Welport, McKittrick, Kern	26-29-21	583	sd. sh. drig.
Union Oil, No. 1 Weston, Belridge, Kern	13-29-21	3,985	sd. sh. drig.
Belridge Oil, No. 11-1 fee, North Belridge, Kern	1-28-20	6,893	br. sh. drig.
Belridge Oil, No. 23-1 fee, North Belridge, Kern	1-28-20	5,966	br. sh. drig.
Belridge Oil, No. 53-26 fee, North Belridge, Kern	28-27-20	8,410	redrig. 7,495
Texas Co., No. 1 Theta, Shale Hills, Kern	12-28-19	3,099	sd. sh. drig.
Davis Pet., No. 1 Kernco, Kern Front, Kern	13-28-27	1,294	bailed wet
Dick & Dore Oil, No. 18 Kern, Kern River, Kern	34-28-28	580	pump 4 b.d.
Dick & Dore Oil, No. 20 Kern, Kern River, Kern	34-28-28	393	pump water
Dick & Dore Oil, No. 21 Kern, Kern River, Kern	34-28-28	431	sd. sh. drig.
Dick & Dore Oil, No. 23 Kern, Kern River, Kern	34-28-28	464	sd. sh. drig.
Dick & Dore Oil, No. 24 Kern, Kern River, Kern	34-28-28	123	sd. sh. drig.
Hast Oil, No. 7 Kern, Kern River, Kern	34-28-28	492	sd. sh. drig.
Helm & Smith, No. 19 Kern, Kern River, Kern	34-28-28	466	sd. sh. drig.
El Tejon O. & R., No. 2 Douglas, Edison, Kern	32-29-29	4,283	P.B. 4,002
Mayes, A. S., No. 1 O.S.E., Edison, Kern	5-30-29	4,160	cleaning out
Goodrum & Vincent, No. 3 S.P., Edison, Kern	31-29-30	750	gr. sd. drig.
Wood-Callahan Oil, No. 1 Heyden, Edison, Kern	21-30-29	4,240	sd. sh. drig.
Allied Pet., No. 35 Allied, Mountain View, Kern	19-30-29	4,677	dry; abd.
Western Gulf Oil, No. 45-B, KCL, Fruitvale, Kern	22-29-27	6,294	sd. sh. drig.
Western Gulf Oil, No. 1 Ansolabehere, Fruit., Kern	14-29-27	3,050	cleaning out
Richfield Oil, No. 1 KCL, Fruitvale, Kern	29-29-27	6,015	dry; abd.
Standard Oil, No. 2 Bryson, Delano Gas Field, Kern	28-24-23	2,467	gas sand
Standard Oil, No. 4 Mushrush, Wasco, Kern	7-27-24	7,972	sd. sh. drig.
Continental Oil, No. 5-8-A, KCL, Wasco, Kern	8-27-24	13,180	sd. sh. drig.
Continental Oil, No. 1 Meyer, Wasco, Kern	7-27-24	11,870	sd. sh. drig.
Continental Oil, No. 1 Community, Shafter, Kern	12-28-24	10,851	sd. sh. drig.
Union Oil, No. 56-27, KCL, Rio Bravo, Kern	27-28-25	10,285	sd. sh. drig.
Superior Oil, No. 1 Rudnick, Rio Bravo, Kern	28-28-25	11,420	flow 1,573 b.d.
Superior Oil, No. 3 Smith, Rio Bravo, Kern	34-28-25	2,866	sd. sh. drig.
Standard Oil, No. 11-23, KCL, Greeley, Kern	18-29-26	10,261	sd. sh. drig.
Standard Oil, No. 12-7, KCL, Greeley, Kern	7-29-26	11,300	hd. sh. drig.
Standard Oil, No. 12-8, KCL, Greeley, Kern	7-29-26	6,942	redrig. 6,760
General Pet., No. 1 Farrand, Greeley, Kern	12-29-25	11,530	flow 2,856 b.d.
General Pet., No. 1 Oughton, Greeley, Kern	12-29-25	4,895	sd. sh. drig.
General Pet., No. 2 Sullivan, Greeley, Kern	12-29-25	167	sd. sh. drig.
Superior Oil, No. 1 Scofield, Greeley, Kern	12-29-25	11,500	flow 1,540 b.d.
Shell Oil, No. 72-30-A, KCL, Ten Section, Kern	30-30-26	5,288	sd. sh. drig.
Shell Oil, No. 34-28-B, KCL, Ten Section, Kern	28-30-26	6,878	sd. sh. drig.
Tide Water-Continental, No. 26-7-E, KCL, Strand, K.	7-30-26	8,340	flow 578 b.d.
Shell-Ohio, No. 64-12-A, KCL, Strand, Kern	12-30-25	8,570	sdtrkg. 8,547
Ohio Oil, No. 18-E, KCL, Canal, Kern	13-30-25	5,478	sd. sh. drig.
Shell Oil, No. 85-15-A, KCL, Canal, Kern	15-30-25	8,195	sd. sh. drig.
Richfield Oil, No. 74-32-A, KCL, Tupman, Kern	32-30-25	7,942	sd. sh. drig.
Richfield Oil, No. 72-33-B, KCL, Tupman, Kern	33-30-25	9,040	O.S. drig.
Richfield Oil, No. 76-29-A, KCL, Tupman, Kern	29-30-25	8,517	repair csg.
Richfield Oil, No. 78-29-A, KCL, Tupman, Kern	29-30-25	5,523	sd. sh. drig.
Richfield Oil, No. 12-3-C, KCL, Cole's Levee, Kern	3-31-25	9,001	sd. sh. drig.
Shell Oil, No. 81-17-B, KCL, Cole's Levee, Kern	17-31-25	9,946	hd. sh. drig.
Standard Oil, No. 20-2, KCL, Cole's Levee, Kern	9-31-25	9,190	testing
Ohio Oil, No. 7-F, KCL, Cole's Levee, Kern	3-31-25	9,740	O.S. drig.
Tide Water A. O., No. 65, KCL, Cole's Levee, Kern	13-31-25	11,050	will abdn.
Tide Water A. O., No. 72, KCL, Cole's Levee, Kern	14-31-25	9,297	hd. sh. drig.
Richfield Oil, No. 1 Slough, South Ten Sec., Kern	6-31-26	10,250	dry; abd.
Foster, Robert, No. 1 Hollingsworth, Mid.-Sun., Kern	22-32-23	1,010	sd. sh. drig.
General Pet., No. 1 B.V.A., Midway-Sunset, Kern	1-32-24	11,550	hd. sh. drig.
Signal Oil & Gas, No. 7 Kendon, Midwy.-Sunset, Kern	35-32-23	2,199	sd. sh. drig.
Shell Oil, No. 45-9 B.V.A., Midway-Sunset, Kern	9-32-25	10,640	sd. sh. drig.
National Oil, No. 35 Sunset, Midway-Sunset, Kern	35-32-23	1,536	tested wet
National Oil, No. 36 Sunset, Midway-Sunset, Kern	35-32-23	1,098	sd. sh. drig.
McDonald, Joseph, No. 19 Midway, Mid.-Sun., Kern	26-31-22	466	sd. sh. drig.
Texas Co., No. 38 Midway, Midway-Sunset, Kern	32-32-24	3,193	P.B. 3,150
Ohio Oil, No. 43-3-B, KCL, Paloma, Kern	3-32-26	10,300	sd. sh. drig.
Western Gulf-Texas, No. 74-3-A, KCL, Paloma, Kern	3-32-26	10,850	sd. sh. drig.
Shell Oil, No. 52-2-13-A, KCL, San Emidio, Kern	13-11-22	13,880	hd. sh. drig.
Burrhus, V. E., No. 1 Haberken, Elkhorn, Kern	21-32-22	2,543	br. sh. drig.
Oil Scout, No. 1 Tejon, Comanche Point, Kern	27-32-29	2,990	sd. sh. drig.
Jergins Trust, No. 1 Cheney, Panoche Creek, Fresno	29-14-13	6,970	O.S. drig.
Texas Co., No. 1 S.P., Turk anticline, Fresno	23-17-15	8,880	br. sh. drig.
Standard Oil, No. 62-19-B fee, N.E. Coalinga, Fresno	19-19-16	8,330	flow 3,734 b.d.
Standard Oil, No. 71-19-B fee, N.E. Coalinga, Fresno	19-19-16	7,690	sd. sh. drig.
Union Oil, No. 68-18 Cook, N.E. Coalinga, Fresno	18-19-16	7,820	sd. sh. drig.
Amerada Pet., No. 28-17 S.P.L., N.E. Coalinga, Fresno	17-19-16	7,591	hd. sh. drig.
Bandini Pet., No. 46-18-B, N.E. Coalinga, Fresno	18-19-16	9,614	C.P. 7,940
Superior Oil, No. 3 Husong, N.E. Coalinga, Fresno	18-19-16	8,210	completing
Bandini Pet., No. 51-30-B, Central Coalinga, Fresno	30-19-16	8,294	flow 2,916 b.d.
Lytle, R. S., Agent, No. 86-12-C, S.E. Coalinga, Fresno	12-20-15	5,550	sd. sh. drig.
Lytle, R. S., Agent, No. 51-7-F, S.E. Coalinga, Fresno	7-20-16	6,364	sd. sh. drig.
Lytle, R. S., Agent, No. 24-18-F, S.E. Coalinga, Fresno	18-20-16	7,035	sd. sh. drig.
Univ. Cons'd. Oil, No. 61-24-C, S.E. Coalinga, Fresno	24-20-15	7,260	hd. sh. drig.
Texas Co., No. 2 Anderson, S.E. Coalinga, Fresno	6-20-16	8,028	O.S. drig.
Standard Oil, No. 77-13-C, fee, S.E. Coalinga, Fresno	13-20-15	6,950	br. sh. drig.
Standard Oil, No. 22-19-F fee, S.E. Coalinga, Fresno	19-20-16	5,468	sd. sh. drig.
Standard Oil, No. 33-19-F fee, S.E. Coalinga, Fresno	19-20-16	1,762	sd. sh. drig.
Standard Oil, No. 42-19-F fee, S.E. Coalinga, Fresno	19-20-16	7,550	O.S. drig.
Superior Oil, No. 2-B Cagle, S.E. Coalinga, Fresno	6-20-16	5,673	sd. sh. drig.
Texas Co., No. 1 Boston, Westhaven, Fresno	14-20-18	8,851	sd. sh. drig.
K. N. D. A., No. 27-18-J, Kettleman N. Dome, Fresno	18-21-17	10,698	sd. sh. drig.
K. N. D. A., No. 334-18-J, Kettleman N. Dome, Fresno	18-21-17	10,230	hd. sd. drig.
K. N. D. A., No. 25-16-Q, Kettleman N. Dome, Kings	16-22-18	7,800	completing
K. N. D. A., No. 34-22-Q, Kettleman N. Dome, Kings	22-22-18	6,488	hd. sh. drig.
K. N. D. A., No. 6-26-Q, Kettleman N. Dome, Kings	26-22-18	7,895	sd. sh. drig.
K. N. D. A., No. 38-26-Q, Kettleman N. Dome, Kings	26-22-18	8,440	hd. sd. drig.
Standard Oil, No. 72-19-J, Kettleman N. Dome, Fresno	19-21-17	10,903	redrig. 10,812
Standard Oil, No. 321-29-J, Kett. N. Dome, Fresno	29-21-17	7,175	sd. sh. drig.
Standard Oil, No. 57-3-P, Kettleman N. Dome, Kings	3-22-17	7,420	cmtd. 7,419
Standard Oil, No. 61-17-Q, Kettleman N. Dome, Kings	17-22-18	8,485	flow 1,245 b.d.
Standard Oil, No. 72-17-Q, Kettleman N. Dome, Kings	17-22-18	8,690	cleaning out
Standard Oil, No. 41-27-Q, Kettleman N. Dome, Kings	27-22-18	6,084	sd. sh. drig.
Standard Oil, No. 63-27-Q, Kettleman N. Dome, Kings	27-22-18	5,992	br. sh. drig.
Standard Oil, No. 72-27-Q, Kettleman N. Dome, Kings	27-22-18	6,766	br. sh. drig.
Standard Oil, No. 83-27-Q, Kettleman N. Dome, Kings	27-22-18	7,691	hd. sh. drig.
Standard Oil, No. 85-27-Q, Kettleman N. Dome, Kings	27-22-18	6,653	br. sh. drig.
Standard Oil, No. 41-35-Q, Kettleman N. Dome, Kings	35-22-18	6,130	sd. sh. drig.
Standard Oil, No. 63-35-Q, Kettleman N. Dome, Kings	35-22-18	8,470	completing
Shell Oil, No. 1 Cohn, Tulare Lake, Kings	4-22-19	10,035	cleaning out
Collins, J. F., No. 1 Konda, Richgrove, Tulare	25-24-27	1,654	slate; abd.
Holly Dev., No. 1 Mehern, Huasno, San Luis, Obispo	7-32-13	606	sd. sh. drig.
Buttes Oilfields, No. 6 Buttes, Marysville, Sutter	1-15- 1	7,070	will P.B.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
B. ck., bottom choke.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits.
Cd. or Crd., cored.
C.D., correct depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drig., or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.S.T., drill-stem test.
D.P., drill pipe.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe-line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Recvd., recovered.
Rmg., reaming.
Redrig., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtrk. or St., sidetracked.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in. prorated.
S.L.M., steel-line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas, and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T. ck., top choke.
T.P., tubing pressure.
Tr., tract.
Tstd., tested.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.O.O., waiting on orders.
W.P., working pressure.
W.S.O., water shutoff.
W.S.O.O.K., water shutoff O.K.
W.S.R. or W.O.S.R., awaiting standard rig
Wtr., water.

Richfield Oil, No. 2 Hill, Potrero, Solano ..... 5- 4- 1 2,730 sd. sh. drlg.
Tassajara Oil, No. 1 Rasmussen, Tass., Contra Costa 9- 2- 1 9,050 sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status
Union Oil, No. 33 Callender, Domingues, L. A.	29- 3-13	6,790	sd. sh. drlg.
Union Oil, No. 75 Callender, Domingues, L. A.	29- 3-13	7,298	sd. sh. drlg.
Shell Oil, No. 102 Reyes, Dominguez, Los Angeles	33- 3-13	3,994	sd. sh. drlg.
Havenstrite, R. E., No. 2 Larronde, Dominguez, L. A.	32- 3-13	6,200	sd. sh. drlg.
Morton & Elder, No. 2 Dominguez, Domingues, L. A.	32- 3-13	7,426	P.B. 7,200
Pongratz Pet., No. 1 Grant, Dominguez, Los Angeles	29- 3-13	7,666	gr. sd.; idle
Apex. Pet., No. 1 Hatfield, Rosecrans, Los Angeles	20- 3-13	9,002	swabbing
St. Anthony Oil, No. 1 Gordon, Rosecrans, L. A. ...	19- 3-13	7,027	cmtd. 7,663
Union Oil, No. 38 Rosecrans, Rosecrans, Los Angeles	19- 3-13	7,884	sd. sh. drlg.
Union Oil, No. 39 Rosecrans, Rosecrans, Los Angeles	19- 3-13	6,576	sd. sh. drlg.
Royalty Service, No. 1 Cement, Rosecrans, L. A.	20- 3-13	9,148	hd. sd. drlg.
El Rey Oil, No. 1 Westmore, Athens, Los Angeles	2- 3-14	7,980	sd. sh. drlg.
Dominguez Estates, No. 1 fee, Torrance, Los Angeles	2- 4-14	7,090	sd. sh. drlg.
Turf Oil, No. 1 H.R.A., Potrero, Los Angeles	34- 2-14	1,000	sd. sh. drlg.
Casa Grande Oil, No. 1 Lopez, San Fernando, L. A.	1- 2-15	2,320	bail mud
Tide Water A. O., No. 12 Porter, Aliso Canyon, L. A.	27- 3-16	8,207	P.B. 7,550
Tide Water A. O. No. 13 Porter, Aliso Canyon, L. A.	27- 3-16	1,302	sd. sh. drlg.
Continental Oil, No. 1 Howell, Aliso Canyon, L. A.	2- 2-16	3,798	sd. sh. drlg.
Tamas Oil, No. 1 Perkins, Newhall, Los Angeles ...	14- 3-16	3,900	cleaning out
Consolidated Pet., No. 4 Needham, Newhall, L. A....	13- 3-16	4,401	testing
Barnsdall Oil, No. 9 R.S.F., Newhall, Los Angeles .	27- 4-17	5,498	sd. sh. drlg.
Barnsdall Oil, No. 10 R.S.F., Newhall, Los Angeles	27- 4-17	1,291	sd. sh. drlg.
Vesta Pet., No. 1 Palos Verdes, Torrance, Los Angeles	31 -4-13	3,800	P.B. 3,700
Continental Corp., No. 4 L.A.C.F.C., Wilm., L. A....	2- 5-13	2,945	O.S. drlg.
Dumm Pet., No. 5 Harbor, Wilmington, L. A.	35- 4-13	3,210	cmtd. 3,115
Hancock Oil, No. 15-A Harbor, Wilmington, L. A....	35- 4-13	2,385	cmtd. 2,380
Hancock Oil, No. 26-B Harbor, Wilmington, L. A....	35- 4-13	3,930	sd. sh. drlg.
L. A. Basin Oil, No. 8 Kupfer, Wilmington, L. A. ...	35- 4-13	3,553	sd. sh. drlg.
Long Beach Dev., No. 10-W-X Harbor, Wilm., L. A.	3- 5-13	3,300	sd. sh. drlg.
Long Beach Dev., No. 8-Z Harbor, Wilmington, L. A.	2- 5-13	3,398	sd. sh. drlg.
Padreson Oil, No. 1-C Harbor, Wilmington, L. A....	33- 4-13	3,565	flow 165 b.d.
Union Pacific R. R., No. 128, Wilmington, L. A.	3- 5-13	3,840	flow 910 b.d.
Union Pacific R. R., No. 131, Wilmington, L. A.	3- 5-13	4,317	fish D.P.
Union Pacific R. R., No. 132, Wilmington, L. A.	4- 5-13	3,520	sd. sh. drlg.
Union Pacific R. R., No. 133, Wilmington, L. A.	3- 5-13	2,675	cmtd. 2,522
Union Pacific R. R., No. 134, Wilmington, L. A.	3- 5-13	159	sd. sh. drlg.
Union Pacific R. R., No. 135, Wilmington, L. A.	3- 5-13	2,520	sd. sh. drlg.
Union Pacific R. R., No. 22-E, Wilmington, L. A.	3- 5-13	3,180	sd. sh. drlg.
Union Pacific R. R., No. 4-P.D., Wilmington, L. A.	3- 5-13	2,787	flow 115 b.d.
West Annex. Oil, No. 1 Shaffner, Wilmington, L. A.	35- 4-13	3,460	flow 192 b.d.
West Whittier Oil, No. 1 Pelissier, Whittier, L. A.	17- 2-11	4,430	P.B. 3,450
Kern Oil, No. 34 Monterey, Montebello, Los Angeles	2- 2-12	5,841	sd. sh. drlg.
Kern Oil, No. 38 Monterey, Montebello, Los Angeles	2- 2-12	7,630	sd. sh. drlg.
Union Oil, No. 9 Howard & Smith, Montebello, L. A.	11- 2-12	7,645	completing
Bush Oil, No. 2 Mihifred, Montebello, Los Angeles	3- 2-12	7,240	sd. sh. drlg.
C. A. P. Oil, No. 1 Dutch, Montebello, Los Angeles	11- 2-12	7,657	redrlg. 7,530
Columbia Oil, No. 1 Scheinik, Montebello, Los Angeles	3- 2-12	7,656	flow 320 b.d.
Franru Oil, No. 1 Condaffer, Montebello, L. A.	11- 2-12	7,618	recmtd. 7,480
Getty-Pac. West., No. 1 Pfister, Montebello, L. A..	10- 2-12	7,610	O.S. drlg.
Grace Oil, No. 1 Duhrsen, Montebello, Los Angeles	3- 2-12	2,892	sd. sh. drlg.
Herley-Kelly, No. 3 Burke, Montebello, Los Angeles	2- 2-12	7,060	sd. sh. drlg.
Mabee Co., No. 6 Mulholland, Montebello, L. A. ...	2- 2-12	7,540	sd. sh. drlg.
Mabee Co., No. 39 Monterey, Montebello, L. A.	2- 2-12	6,984	sd. sh. drlg.
Texas Co., No. 2 Wilcox, Montebello, Los Angeles..	3- 2-12	7,777	flow 592 b.d.
Winlock Oil, No. 1 Win, Montebello, Los Angeles..	11- 2-12	7,590	swab. dry
Allied Pet., No. 34 Signal, Long Beach, Los Angeles	30- 4-12	10,065	sd. sh. drlg.
Sunset Oil, No. 1 Alford, Long Beach, Los Angeles	19- 4-12	2,920	sd. sh. drlg.
Caminol Co., No. 3-19 Dominguez, Long Beach, L. A.	11- 4-13	7,674	P.B. 7,580
Texas Co., No. 10-A Davidson, Long Beach, L. A. ...	19- 4-12	4,391	sd. sh. drlg.
Worland, C. C., No. 1 Oates, Castaic, Los Angeles ..	18- 5-16	2,251	dry; abd.
Great Northern Oil, No. 1 Oak, Richfield, Orange ..	28- 3- 9	3,315	cleaning out
Welco Oil, No. 1 Yorba, Richfield, Orange	33- 3- 9	4,800	sd. sh. drlg.
Mojave Pet., No. 1 Tuffree, Yorba Linda, Orange..	21- 3- 9	2,490	sd. sh. drlg.
Fullerton Oil, No. 25 Brea, Brea Canyon, Orange ..	2- 3-10	3,550	sd. sh. drlg.
Southwest Expl., No. 25 State, Hunt. Beach, Orange	10- 6-11	4,595	O.S. drlg.
H. R. O. Oil., No. 1 Hunt., Hunt. Beach, Orange	11- 6-11	4,592	P.B. 2,000
Pacific-Amer. Oil, No. 6 Book, Hunt. Beach, Orange	36- 5-11	3,873	bailing
South Basin Oil, No. 93 H.B., Hunt. Beach, Orange	2- 6-11	7,560	P.B. 5,400
Thompson, M. N., No. 1 Smith, Costa Mesa, Orange	9- 6-10	5,090	sd. sh. drlg.

OKLAHOMA

Week Ended March 9

NORTHERN OKLAHOMA

Caddo County

Sinclair Prairie Oil Co.'s No. 1 Groman, SW NW NW Sec. 1-16-13w, Wix. 9,179 f.; D.S.T. 9,294 ft.; open 1 hr. and rec. 180 ft. mud; no gas or oil; drlg. sh. 9,845 ft.

Comanche County

Mid Night Oil's No. 1 Howe, NW NW NE Sec. 30-2-13w, O.W.D.D.; O.T.D. 703 ft.; dpnd. to 998 ft.; acd. and swbd. wtr. and S.S.O.; S.D.

Creek County

Bryan Pet. Co.'s No. 1 Ah-Say, NE NW NE Sec. 34-14-7. Drlg. 1,457 ft.
Indo Oil Co.'s No. 1 Slick, NW NW NW Sec. 1-16-9. Spd. 135 ft.

Dewey County

Magnolia Pet. Co.'s No. 1 Fiekes, C SW SW Sec. 31-18-14w, D.S.T. rec. mud at 7,718 ft.; drlg. 7,729 ft.

Garfield County

Fain Drlg.'s No. 1 Schnakenburg, NE SE SW Sec. 31-21-4w, Wd. 6,307 ft.; Miss. 6,375-95 ft., N.S.; Vis. 6,395 ft.; drlg. 6,478 ft.

Garvin County

Travis Sanders' No. 1 Buckner, NW NW SW Sec. 27-1-2w. Drlg. 2,095 ft.

Grant County

Continental Oil Co.'s No. 1 Krichmar, SE SE NE Sec. 28-28-5w. Drlg. 4,131 ft.

Hughes County

J. W. Boydston's No. 1 Robstein, C NW SE Sec. 11-6-9. S.D. 175 ft.
Hall & Jordan's No. 1-A Barker, SE SE SW Sec. 3-8-9. Drlg. 1,950 ft.
Geo. Pace's No. 1 Cahill, C E½ NE SW Sec. 2-6-8. T.D. 2,917 ft.
Walker & Johnson's No. 1 Rogers, NE NE NE Sec. 24-7-9. S.S.O. 565-85 ft.; T.D. 635 ft.; D.&A.
Walker & Johnson's No. 2 Rogers, NE NE NE Sec. 24-7-9. Loc.

Kay County

Malarnee Oil Co.'s No. 1 Harris, C SW NE Sec. 14-25-1. Est. P. 40 B.O. in 24 hrs.; drlg. below 3,900 ft.

Kingfisher County

Phillips Pet. Co.'s No. 1 Drape, C NW SE Sec. 30-18-5w. Drlg. 2,046 ft.

Kiowa County

Frank Dillard et al's No. 1 Hobbs, SE SE NW Sec. 35-6-17w. Set 6⅝-in. 525 ft.; T.D. 690 ft.

Lincoln County

Harper & Turner's No. 1 Mann, NW NW SE Sec. 23-14-5. Bart. 3,937 ft.; sdy. sh. 3,951-67 ft.; T.D. 4,069 ft., N.S.; D.&A.
R. M. Purcell et al's No. 1 Wolcott, NW NW NW Sec. 2-13-4e. R.O.C.
Youngblood et al's No. 1 Wright, NE NE SE Sec. 32-16-6. Misenr. 3,929 ft.; Htn. 3,934 ft.; Vis. 4,017 ft.; Wix. 4,172-79 ft.; T.D.; P.B. to test Mayes L.

Logan County

Heimerich & Payne's No. 1 McMahon, SW SW SE Sec. 31-17-1. Hntn. 4,983 ft.; Vis. 5,175 ft.; Wix. 5,272 ft.; 2nd Wix. 5,420 ft.; 5-in. to 5,346 ft.

McIntosh County

Acme Drlg. Co.'s No. 1 Reynolds, NE NE SW Sec. 22-11-14. Drlg. 1,040 ft.
Phillips' No. 1 Blankenship, C SW NW Sec. 33-10-13. Drlg. sd. 2,988 ft.

Muskogee County

R. Garrett's No. 1 Escoe, SW SW SE Sec. 16-13-17. Drlg. 1,650 ft.

Okfuskee County

Burke-Greis' No. 1 Dew, NE NE NE Sec. 9-12-9. R.U.S.T.

Payne County

Heimerich & Payne's No. 1 Kramer, NW NW SE Sec. 24-17-1e. Vis. 4,931 ft.; Wix. 5,014 ft.; cd. 5,015-20 ft.; white sd.; to core and.
Texas Co.'s No. 1 Burroughs, C E½ NE NW Sec. 11-17-1. Drlg. 1,980 ft.

Pontotoc County

Crescent Oil Co.'s No. 2 Thompson, NE NW SW Sec. 29-3-4. T.D. 460 ft.; S.D.

Pottawatomie County

Alma Oil Co.'s No. 1 Lyday, SE NE SW Sec. 30-6-5. T.D. 3,979 ft.; Schlumbg. showed oil in Earlsboro; perf. 2,602 ft.; 2,730 ft.; mud and S.S.O.; S.D.

Seminole County

Tom Nix' No. 2 Warren, C E½ NE SE SE Sec. 4-6-8. S.D. 930 ft.
Stanolind O. & G. Co.'s No. 1 Aldridge, NW NE SE Sec. 32-9-8. Htn. 4,127 ft.; Vis. 4,304 ft.; 1st Wix. 4,370 ft.; T.D. 4,391 ft.; to run Schlmb.

Washita County

Continental Oil Co.'s No. 1 School ld., C NE¼ Sec. 16-8-16w. T.D. 265 ft.

SOUTHERN OKLAHOMA

Atoka County

Brookshire et al's No. 1 Jones, C SW NW Sec. 29-3s-12. T.D. 2,045 ft.; lost bit; may test Mayes at 1,945 ft.

Carter County

W. F. Turner's No. 1 Smith, NE SW SE Sec. 16-3s-1w. S.D. 3,640 ft.

Choctaw County

Clyde Ross et al's No. 1 Hardy, SE SE NW Sec. 21-7s-15. T.D. 1,916 ft., sdy. L. and S.S.O.; W.O. inr.

Jackson County

Jones & Robinson's No. 1 Neal, SW SW SW Sec. 8-1s-20w. Rig.

Jefferson County

Fred Land et al's No. 1 Barrett, NE SE SE Sec. 14-6s-6w. Sd. 1,852 ft., S.O.; D. P. stk. at 1,100 ft.; T.D. 1,890 ft.; S.D.

Marshall County

Johnson et al's No. 1 Godfrey, SW SE NE Sec. 14-6s-6e. Vis. 2,027 ft.; S.S.O.; T.D. 4,455 ft. in sd.; S.O.; S.D.
May Oil Corp.'s No. 1 Sacrea, SW NE SW Sec. 17-5-5. Drlg. 860 ft.
Pure Oil's No. 1 Little, W½ NE SE Sec. 28-5s-7e. D.S.T. at T.D. 4,506 ft.; rec. 5 to 8 million cu. ft. gas; drlg. 4,565 ft.

Murray County

C. P. Williams' No. 1 fee, NE NE SE Sec. 22-1n-4. Arb. 685 ft.; drlg. 720 ft.

KANSAS

Week Ended March 9 (Descriptions are East unless marked otherwise)

Barton County

Phillips' No. 1 Wondra, CWL SW NE Sec. 15-17-12w. Lans. 3,049 ft.; 700 ft. O.I.H., 10 hrs.; congl. 3,292 ft.; Arb. 3,316 ft.; S.O.&W. 3,318-20 ft.; H.F.W. 3,325 ft., T.D.; P.B. to 3,054 ft.; drld. cmt. to 3,090 ft.; 450 ft. O.I.H.

Butler County

Atlantic and Sinclair's No. 1 Smith, SE SE NW Sec. 33-33-4. Drlg. 2,108 ft.

Cowley County

Atlantic and Sinclair's No. 1 Smith, SE SE NW Sec. 33-33-4. Tpka. 1,365 ft.; drlg. 2,385 ft.
Markey & Talbot's No. 1 Anderson, C N½ NE NW Sec. 21-30-3. Drlg. 2,555 ft.
Markey & Mission's No. 1-A Hunt, SW SW NE Sec. 16-34-5. Drlg. 1,430 ft.
C. F. Meyers' No. 1 Dunn, NW NW NW Sec. 33-34-5. Drlg. 1,975 ft.

Ellsworth County

Lauck & Moncrief's No. 1 Ehler, CWL SW NW Sec. 35-16-10w. Lans. 2,943 ft.; Arb. 3,295-97 ft.; S. 33 B.O. in 2 hrs.; P.B. 3,306 ft.; 600 ft. O.I.H. in 6 hrs.

Gove County

Cities Service's No. 1 Victory, CWL NW¼ Sec. 36-13-30w. Miss. 4,412 ft.; Vis. 4,564 ft.; Arb. 4,615 ft.; N.S.; D.&A.

Greenwood County

A. A. Hinze et al's No. 1 Hester, NW SW NE Sec. 1-22-12. S.D. 510 ft.
Marylyn Oil's No. 1 Burke, NE NE SW Sec. 27-24-11. Set 10-in. 685 ft.; S.D. 725 ft.; T.D. 825 ft.
Rex & Morris' No. 1-A Wright, C N½ Lot 16, Sec. 30-28-8. T.D. 2,865 ft.; D. &A.
C. L. Sheedy et al's No. 1 Hook, NW SW NW Sec. 4-22-10. T.D. 3,244 ft. in Miss.; S.S.O.

Jefferson County

McLaughlin Sons, Inc.'s No. 1 McLaughlin, SW NE NW Sec. 4-10-20. T.D. 1,915 ft.; whpstk. 1,858 ft.; P.B. 1,550 ft.; S.D.

Johnson County

Thurow et al's No. 1 Green, C SW¼ Sec. 25-14-22e. Burg. 1,038 ft.; S.S.O.; base Miss. 1,473 ft.; T.D. 1,698 ft.; inc. wtr.; D.&A.

McPherson County

Aladdin Pet. Co.'s No. 1 Bitikofer, CNL NE NW Sec. 1-20-1w. Cellar.

Marion County

Harrington & Loriseaux's No. 1 Belton SE SE NE Sec. 30-17-4. Drlg. 1,230 ft.
Polhamus et al's No. 1 Noone, NW NW SE Sec. 19-18-3. T.D. 2,907 ft.; D.&A.
H. H. Royer's No. 1 Kroch, NE NE NW Sec. 28-18-4. Drlg. 1,585 ft.

Reno County

Dutton et al's No. 1 Green, SE SE SE Sec. 8-23-4w. S.D. 786 ft.

Rice County

Mid-Plains Oil Co.'s No. 1 Newkirk, CSL SW SW Sec. 14-18-7w. Misnr. 3,244 ft.; S.O.; Vis. 3,375 ft.; Arb. 3,482-86 ft., T.D.; D.&A.
Pryor & Lockhart's No. 1 Southern, C N½ NE NE Sec. 14-19-10w. Lans. 2,-933 ft.; Arb. 3,284 ft.; S.S.O.; T.D. 3,-325 ft.; H.F.W.; D.&A.

Rooks County

Seaney & Ciampitt's No. 1 Morrison, CSL SW NE Sec. 32-10-17w. Loc.

Russell County

I. W. Murfin et al's No. 1 St. Aubyan, CSL SW SE Sec. 1-15-15w. Tpka. 2,710 ft.; Lans. 3,000 ft.; drlg. 3,077 ft.

Sedgwick County

G. A. Fuller's No. 1 Stilt, CSL SE NE Sec 21-27-1w. Drlg. 2,527 ft.
Sunray Oil Co.'s No. 1-A McMillan, CWL NW NW Sec. 14-29-2w. Miss. 3,564 ft.; cg. 3,930 ft.

Stafford County

A. M. Landon et al's No. 1 Coen, SE SE SE Sec. 15-23-14w. Lans. 3,545 ft.; S. O. 3,730-36 ft.; Arb. 3,985-4,003 ft., T. D.; N.S.; D.&A.

MISSOURI

Adair County

Ettington et al's No. 1-A Clark, NE NE SE Sec. 8-63-14w. Drlg. 540 ft.

Holt County

Brin & Nathan's No. 1 Decker, C NW NW Sec. 1-61-38w. T.D. 1,030 ft.; S.D. for csg.

Schuyler County

T. E. Baldwin's No. 1-A Johnson, NW NE NE Sec. 21-65-15w. Vis. 1,280 ft.; S.D. 1,310 ft.

IOWA

Union County

Phillips Pet. Co.'s No. 1 Creston, C SE NE Sec. 31-71-30w. Hntn. 1,595 ft.; drlg. 2,354 ft.

NEBRASKA

Cass County

Golden Rod Oil Co.'s No. 1 Sparer, SE SE SE Sec. 8-11-13e. S.D. 1,205 ft., Vis. L.

Dakota County

Peder Skriver's No. 1 Armor, NE NE NE Sec. 33-28-8. T.D. 1,100 ft.; S.D.

Dawes County

G. E. Mitchell's No. 1 Palmer, NW NW SW Sec. 1-33-50w. (O.W.D.D.); O.T.D. 2,964 ft.; R.U. to D.D.

Fillmore County

Dan Kornfeld's No. 1 Mathis, NE NE NE Sec. 22-5-1w. S.D. 2,008 ft.

Keith County

California-Nebraska Oil, Ltd.'s No. 1 Guststuehm, NW NW NW Sec. 21-14-37w. Dak. 2,772 ft.; S.O. 2,895-2,901 ft.; cd. 3,258-61 ft.; S.S.O.; S.D. 3,300 ft.

Pawnee County

Blaser & Hoerman's No. 1 Wilson, NE NW NW Sec. 4-1-10. S.S.O. 470-71 ft.; drlg. 476 ft.

Richardson County

Pawnee Royalty's No. 1 Boice, CSL N½ NE NE Sec. 18-1-16e. Hntn. 2,276 ft.;

dpnd. to 2,292 ft.; P.&F. 78 B.O. and 403 B.W.; S.I.; stor.

Pawnee Royalty's No. 1 Myers, C NW NW Sec. 24-1-1e, Via. 3,183-86 ft.; S.O.: Arb. 3,580 ft.; S.W. in Wlx. and Arb.; T.D. 3,710 ft. in Arb.; D.&A.

Stephens & Uhrl's No. 1-A Ogle, NW SE SE Sec. 9-1-14. R.T. on ground.

Stephens & Uhrl's No. 1 Stauffer, SW SW NE Sec. 21-1n-13e. S.D. 475 ft.

Scotts Bluff County

Albert Wood et al's No. 1 McHenry, SE NE NE Sec. 33-23-57w. T.D. 825 ft.; S.D.

J. A. Fairy Pet.'s No. 1 McCulley, C SE SE Sec. 35-23-58w. S.D. 2,035 ft.

ARKANSAS

Arkansas County

J. M. Hazelwood et al's No. 1 L. Miller, 1,980 ft. S, 667 ft. W, NE cor. NE¼ Sec. 33-6s-4w. Drlg. sd.&sh. 484 ft.

Clark County

J. H. Coker and J. P. Grieves' No. 1 C. McClellan, 330 ft. NW cor. NW SE Sec. 11-20-21. Set 8¼-in. csg. 43 ft.; W.O.C.

W. S. King's No. 1 N. Ross, 640 ft. S, 359 ft. W, NE cor. S½ SW Sec. 3-10-21. T.D. 2,050 ft.; S.D.; fuel.

Columbia County

Atlantic Ref. Co.'s No. 1 Gunnels, 182 ft. N, C SW SW Sec. 19-17-19. Drlg. rd.&gr. sh. 6,026 ft.

Jas. Forgotson's No. 1 L. M. Dendy, C SW SW Sec. 24-17-19. M.I. rig.

Hassie Hunt's No. 2 McWilliams, NE NE Sec. 16-18-19. 9⅝-in. csg. 2,109 ft.; set 5½-in. csg. 8,250 ft.; would not flw.; rkd. with gas and attempted acd; would not take acd.; W.O.; T.D. 8,264 ft.

McAlester Fuel Oil Co.'s No. 1 H. Sayers unit, C NE NW Sec. 15-18-22. Set 9⅝-in. csg. 4,060 ft.; drlg. rd.&gr. sh. 5,569 ft.

J. K. Mahoney's No. 2 E. Riley, C NE NE Sec. 14-18-19. T. por. L. 8,140 ft.; set 6-in. csg. 8,217 ft.; T.D. 8,220 ft.

Mid-Continent Pet. Corp. et al's No. 1 R. S. Foster, 100 ft. N, C SE SW Sec. 24-17-20. Drlg. 3,173 ft.

Normandie Oil Corp.'s No. 1 D. R. Booth, C N½ NE NW and N½ NW NE Sec. 25-17-20. R.U.

Shell Oil Co., Inc.'s No. 2 Peoples Bnk. of Columbia, C SW SW Sec. 24-17-20. R.U.

Standard Oil Co. of La.'s No. 1 A. W. Gunnels et al, C SW NW Sec. 20-17-19. Set 9⅝-in. csg. 2,181 ft.; T. Smkvr. L. 7,455 ft.; cg. 7,535 ft.

Tide Water Asso. Oil Co. and Seaboard Oil Corp.'s No. 1 W. T. Beene, C NE NW Sec. 14-18-19. Pitts.

Tide Water Asso. Oil Co. and Seaboard Oil Corp.'s No. 2 J. T. Beene, C NE NW Sec. 15-18-19. Set 13⅜-in. csg. 132 ft.; drlg. rd.&gr. sh. 6,567 ft.

Tide Water-Seaboard Oil Co.'s No. 1 W. Mack, C SW NE Sec. 16-18-19. Fsg. 7,631 ft.

G. H. Vaughn's No. 1-D J. Jones, 495 ft. S, 660 ft. W, NE cor. NE NE Sec. 21-17-20. T.D. 7,634 ft.; set 6-in. csg. 7,600 ft. (cor.); flwd. 75 bbl. in 10 hrs. and went dead; swbd.; W.O.

Craighead County

Tennark, Inc.'s No. 1 R. M. Martin, SE cor. NE NE Sec. 35-14-3e. T.D. 5,092 ft.; ran electric log; S.D.; hd. L.

Howard County

Wm. James, tr.'s No. 3 I. M. Rooke, 50 ft. SW of No. 1, Sec. 2-8s-27w. T.D. 550 ft.; moved rig; W.O.

Lonoke County

Lunnon Howell & Ford's No. 1 City of Cabot, C NE Lot 1, Blk. 6, Sec. 18-4n-9w. Set 4½-in. csg. 878 ft.; T.D. 886 ft.; tstd. dry; S.D.; W.O.

J. F. Russell's No. 1 J. T. Gunter, 440 ft. N, 577 ft. W, SE cor. Sec. 17-5n-10w. S.D. 2,124 ft.

Miller County

Skelly Oil Co. and Pacific Western Oil Corp.'s No. 1 E. C. Wallis, C 8½ SE SE Sec. 7-20-27. Set 9-in. csg. 1,948 ft.; drlg. L.&sh. 4,213 ft.

Standard Oil Co. of La.'s No. 1 W. P. Sturgis, 660 ft. S and W, C Sec. 1-17-27. Set 9⅝-in. csg. 2,497 ft.; drld. sd. &sh. 2,900-23 ft.; S.O.; cd. 2,923-30 ft.; rec. sd.&sh.; S.O.; D.S. tstd. oil.

Nevada County

Berry Asphalt Co.'s No. 9 Groves Ld. & Tmbr. Co., 330 ft. S and W, C Sec. 10-14-20. Set 10-in. csg. 28 ft.; 500 ft. F.I.H.; W.O.S.R.; T.D. 1,266 ft.

Velma Oil Co.'s No. 1 T. M. Bemis, 330 ft. NW cor. NW NE Sec. 23-10s-22w. Set 10-in. csg. 66 ft.; S.D. 68 ft.

Ouachita County

Liberty Oil Co.'s No. 1 P. T. Hildebrand, 660 ft. S, 330 ft. W, NE cor. SE¼ Sec. 28-15-15. O.W.W.O.; O.T.D. 4,934 ft.; reperf. csg. 2,000-25 ft.; tstd. S.W. and recmtd. perf.; arng. reperf.; T.D. 2,784 ft.; M.I.C.T.

Saline County

A. W. Givens' No. 1 Williams, 375 ft. S, 420 ft. E, NW cor, NE NE Sec. 18-3s-15w. Drlg. L.&sh. 327 ft.

Sevier County

R. A. McArthur's No. 1 Bell est., 20 ft. SE cor. SE SW Sec. 29-9s-32w. Drlg. hd. rd. sh. 733 ft.

St. Francis County

D. T. Hargraves et al's No. 1 J. T. Wellford, 400 ft. N, 300 ft. W, SE cor, NE NE Sec. 29-4n-1w. R.U.

Union County—Schuler

Delta Drlg. Co.'s No. 1 J. C. Morgan, 330 ft. S and W, C Sec. 13-18-18. Drlg. 57 ft.

Union County—Other

Berg & Laney's No. 1 Cutrer, 150 ft. N, 660 ft. W, SE cor, NW SW Sec. 21-17-14. Cd. 2,727-28 ft.; rec. 7-in. por. sd.; cd. 2,728-35 ft.; rec. 7¼ ft. soft por. sd., salty taste; drlg. by fish 350 ft.; T.D. 3,370 ft.; set 5½-in. csg. 2,771 ft.; S.D. 3,502 ft.; W.O.

Kinard Curtis et al's No. 1 J. A. Kelly, 330 ft. SW cor. SE SW SW Sec. 9-17-14. Set 10-in. csg. 203 ft.; T.D. 205 ft.; W.O.C.

Ouachita Union Oil Corp.'s No. 1 Ramsey est., 330 ft. NE cor. SE NW Sec. 26-17-14. Set 10-in. csg. 107 ft.; set whpstk. 3,042 ft.; T.D. rd. sh. 4,643 ft.; ran elec. log; S.D.; W.O.

LOUISIANA

NORTH LOUISIANA

Bossier Parish

Gulf Ref. Co.'s No. 20 C. B. Hodges, 3,131 ft. N, 1,388 ft. W, SE cor. Sec. 24-16-12. T. Pett. L. 5,208 ft.; T. Trv. Pk. 5,590 ft.; D.S.T. 8,261-93 ft.; tstd. 220 ft. mud; T.D. 8,647 ft.; no show; P.B. 1,640 ft. to clk.; perf. 1,550-62 ft.; W.O.S.R.

Premier Dev. Co.'s No. 1 Mehaffey, 150 ft. S, 1,980 ft. W, NE cor. Sec. 27-19-11. Set 12½-in. csg. 155 ft.; W.O.C.

Triangle Drlg. Co.'s No. 5-A Skannal, 2,001 ft. E, 665 ft. N, SW cor. Sec. 15-17-12. Set 9⅝-in. csg. 240 ft.; set 5½-in. csg. 3,145 ft.

Union Prod. Co.'s No. 2-B Thigpen & Herold, 1,245 ft. S, 1,388 ft. E, NW cor. Sec. 19-17-11. R.U.

Caddo Parish

J. W. Bailey's No. 1 Gibbs, Sec. 7-20-15. Set 6⅝-in. csg. 1,320 ft.

Baker & Wissman's No. 1 Muslow, Sec. 31-21-15. R.U.

Beaudon & Griffin's No. 1 Davidson, Sec. 26-21-16. R.U.

F. W. Burford's No. 2 Atkins, Sec. 5-23-15. 9⅝-in. csg. 850 ft.; drlg. sh.&L. 4,892 ft.

D. L. Butler's No. 1 Browning, Sec. 28-22-16. Cg. 2,633 ft.

D. T. Cauble's No. 1 Darnell, Sec. 17-22-16. Set 10-in. csg. 80 ft.; cg. 2,791 ft.

Davidson & Brown's No. 1 Wells, Sec. 10-21-15. Set 8-in. csg. 1,597 ft.; acd. with 4,000 gal.; T.D. 1,789 ft.

Duncan & Harrison's No. 1 Carter, Sec. 9-21-16. Set 10-in. csg. 42 ft.; set 7-in. csg. 1,058 ft.; tstg.

Galbraith & Mealey's No. 20 Raines, Sec. 22-21-15. Set 6⅝-in. csg. 1,474 ft.; T.D. 1,625 ft.; will acd.

L. O. Gandy's No. 1 Etchinson, Sec. 11-20-16. Set 10-in. csg. 40 ft.; drlg. sh. 155 ft.

J. H. Hooker's No. 1 Muslow, Sec. 5-20-15. S.D. 800 ft.; rep. rig.

Kendricks & Bashaw's No. 1 Huckaby-Parker, Sec. 14-22-16. S.D. 1,616 ft.

Magnolia Pet. Co.'s No. 31 Dillon, Sec. 23-21-15. Set 10¾-in. csg. 40 ft.; W.O.C.

Bobby Manziel's No. 1 City of Shreveport, 660 ft. NW cor. SW¼ Sec. 35-18-14. Por. L. 5,556-75 ft.; set 5½-in. csg. 5,562 ft.; drld. plug; cleaning.

Murray Samuels' No. 1 Howard, Sec. 1-20-16. Set 6⅝-in. csg. 1,354 ft.; drlg. plug 1,480 ft.

Southern Oil Co.'s No. 2 Muslow, Sec. 5-20-15. Set 7-in. csg. 1,395 ft.; acd. 5,000 gal.; W.O.S.R.; T.D. 1,556 ft.

Stanolind O. & G. Co.'s No. 2 Alexander, 670 ft. E, 2,461 ft. S, NW cor. SE Sec. 21-21-15. Acd. with 3,000 gal.; T.D. 1,750 ft.; W.O.S.R.

Stanolind O. & G. Co.'s No. 1 Lane, Sec. 25-21-15. Set 5½-in. csg. 1,380 ft.; acd. 1,569 ft.

Stanolind O. & G. Co.'s No. 13 Slattery, Sec. 21-21-15. Set 8⅝-in. csg. 69 ft.; set 5½-in. csg. 1,401 ft.; T.D. 1,593 ft.; tstg.

H. J. Strief's No. 2 Noel est., Sec. 12-20-16. Set 10-in. csg. 40 ft.; 7-in. csg. 1,332 ft.

Jack Terrell's No. 1 Welch, Sec. 3-20-16. Set 6-in. csg. 946 ft.

Texas Co.'s No. 2 Guy fee, Sec. 1-20-16. Set 6⅝-in. csg. 1,348 ft.; T.D. 1,357 ft.; W.O.C.

W. & W. Oil Co.'s No. 4 Ark. F. O. Co., Sec. 12-20-16. S.D. 1,150 ft.; jnkd. hole 1,150 ft.; skd. over 40 ft.; set 10-in. csg. 40 ft.; cg. 1,391 ft.

Sloan Wells' No. 1 Stiles, 3,734 ft. N, 1,706 ft. E, SW cor. Sec. 32-21-16. Set 10-in. csg. 340 ft.; set 6⅝-in. csg. 2,298 ft.; W.O.C.

Ivan W. Wright's No. 1 Moore, Sec. 1-20-16. Set 10-in. csg. 40 ft.; drlg. sh.& sd. 1,150 ft.

De Soto Parish

Jaun Dewey's No. 1 Frost Lbr. Ind., 600 ft. SE cor. SW¼ Sec. 14-22-3e. T. D. 2,949 ft.; bailed down 2,300 ft.; S. S.O.; tstd. S.S.O.&S.W.; cd. to 2,951 ft. and S.D.; rig repairs.

La Salle Parish

Georgetown Oil Co.'s No. 4 Baldridge, 300 ft. S, 250 ft. E, NW cor. NE NW Sec. 11-9-1e. R.U.

H. L. Hunt and Ark. Fuel Oil Co.'s No. 1 Goodpine Lbr. Co., C NW NW Sec. 18-10n-3e. Fsg. 3,030 ft.; blew out and bridged at 1,200 ft.; drld. bridge and twisted off 2,000 ft. D.S.; left wall hook in hole while fsg.; P.B. 900 ft.; whpstk. 900 ft.; ran Schlmb. to 3,039 ft.; drlg. limy sh. 8,527 ft.

Placid Oil Co.'s No. 9 Cent. La., 810 ft. S, 150 ft. W, NE cor. Sec. 13-10-2e. Cd. 2,884-2,903 ft.; soft, gr. por. sd.; S.O.; sd. 2,397-2,409 ft.; S.O.; set 5½-in. csg. 2,396 ft.; T.D. 2,993 ft.; tstg.

Madison Parish

Gulf Ref. Co.'s No. 1 Sondheimer, 175 ft. N, 35 ft. W, C Sec. 33-18-12e. Spd.; set 13⅜-in. csg. 169 ft.; T.D. 186 ft.; W. O.C.

Morehouse Parish

Southern Carbon Co.'s No. 27 Tensas, 1,341 ft. S, 4,009 ft. E, NW cor. Sec. 2-21-4. Set 6-in. csg. 2,225 ft.; W.O.C.

Natchitoches Parish

J. E. Watts' No. 1 Tanner est., 330 ft. SW cor. NW¼ Sec. 18-10-10. Set 10-in. csg. 60 ft.; W.O.C.

Sabine Parish

P. C. Alexander's No. 1 Tilly, 330 ft. SW cor. NE SE Sec. 30-8-12. S.O. 2,230 ft.; set 7-in. csg. 2,170 ft.; prep. test.

A. R. Chestnut's No. 1 Logan, 330 ft. SW cor, NW NW Sec. 26-10-13. R.U.

R. Chestnut's No. 1 Walden, 330 ft. SE cor. NE NE Sec. 27-10-13. Set 10-in. csg. 42 ft.; set 7-in. csg. 1,458 ft.; T.D. 1,966 ft.; pmpd. S.W.; S.O.; W.O.S.R.

N. B. Livingston's No. 1 Bowman Hicks, 660 ft. SE cor. SW Sec. 36-9-14. Set 10-in. csg. 110 ft.; D.S.T. 3,125-59 ft.; ¼-in. cks. T.&B.; 35 min.; rec. 150 ft. mud and S.G.; arng. 5¼-in. csg. 3,508 ft., T.D.; tstd. gas 3,462-3,535 ft.; perf. between 3,134 ft. and 3,462 ft. and tstd. est. 1,000,000 cu. ft. gas, S.O., and S.W.; P.B. 3,200 ft.; tstd. S.W.; S.O. 3,134-50 ft.; acd. with 1,500 gal.; tstd. S.W. and 50 B.O.; T.D. 3,170 ft.; W.O. S.R.

Major Oil Co.'s No. 2 Sabine, 330 ft. SE cor. SE SW Sec. 5-7-13. Set 7-in. csg. 2,061 ft.; arng. test 2,475 ft.

Claude H. Smith's No. 1 Whitney Corp., 330 ft. N and E, C Sec. 24-10-14. S.D. 3,210 ft.; W.O.

J. H. Thames' No. 1 Long Bell, 330 ft. SW cor. NE SE Sec. 5-8-13. T.D. 1,708 ft.; set 7-in. csg. 1,680 ft.; did not tst. 1,708 ft.; T.D. 1,987 ft.; acd. with 1,000 gal.; tstg. 1,987 ft.

Union Parish

Memphis Nat. Gas Co.'s No. 5 Lankford, Sec. 3-21-3. Set 6-in. csg. 2,146 ft.

Memphis Nat. Gas Co.'s No. 1 Wilson, Sec. 2-21-3. Set 6-in. csg. 2,144 ft.

Webster Parish

Hassie Hunt's No. 2 Coyle, C SW SE Sec. 22-21-10. No Hillwy. sd.; P.B.; set 5,918 ft.; T.D. 6,294 ft.; testd Small amt. oil; rocking with gas and tstg.; T. Hillwy. sd. 5,543 ft.

Hunt Oil Co.'s No. 1 Gaines, 50 ft. NW C NW NE Sec. 30-21-9. Set 9⅝-in. csg. 5,615 ft.; no Hillwy. sd.; C.O.; cond. mud; drlg. 5,395 ft.

Hunt Oil Co.'s No. 1 Jordan, 660 ft. N, 560 ft. W, SE cor. NE Sec. 31-21-10. No Hillwy sd.; drlg. 8,016 ft.

Hunt Oil Co.'s No. 5 Stewart, 660 ft. N, 560 ft. E, SW cor. NW¼ Sec. 29-21-10. Set 9⅝-in. csg. 5,610 ft.; drlg. 7,302 ft.

Quad Oil Co.'s No. 3 Gray, 105 ft. SE cor. NE SE Sec. 27-21-10. Set 13⅜-in. csg. 640 ft.; drlg. sh. 1,313 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co.'s No. 1 Boudoin, Sec. 64-12s-3e. 13⅜-in. csg. 1,776 ft.; drlg. sh. 2,630 ft.

Continental Oil Co.'s No. 1 Motty, Sec. 18-12s-3e. T.D. 10,444 ft.; trying to sdtrk.

Anse La Butte—St. Martin Parish

Glassell & Glassell's No. 2 Breaux, Sec. 118-9s-5e. Drlg. sh. 3,527 ft.

Glassell & Glassell's No. 1 Morest, Sec. 121-9s-5e. R.U.

Iberia Pet. Co.'s No. 1 A. P. Morest, Sec. 118-9s-5e. Drlg. 1,418 ft.

Emer Line Oil Co.'s No. 1 Nickerson, Sec. 86-9s-5e. T.D. 2,634 ft.; P.B. 1,000 ft.

Bancroft—Beauregard Parish

Republic Prod. Co.'s No. 15 Columbia Ld. Co., Sec. 21-6s-13w. Drlg. sh. 3,630 ft.

Republic Prod. Co.'s No. 16 Columbia Ld. Co., Sec. 21-6s-13w. T.D. 7,288 ft.; 5½-in. csg. 7,278 ft.

Barataria—Jefferson Parish

California Oil Co.'s No. 1 Danciger-State, Sec. 2-16s-23e. Loc.

California Oil Co.'s No. 1 State-Bayou, Twp. 16s-23e. 10¾-in. csg. 2,002 ft.

California Oil Co.'s No. 1 Zeringue-Community, Sec. 2-16s-23e. Drlg. sh. 7,310 ft.

Carter, Perrin & Brian's No. 1 Ruttley Wiseman, Sec. 2-16s-23e. Drlg. sh. 7,580 ft.

Geo. Conover's No. 1 Conover Community, Sec. 22-15s-23e. Loc.

Fohs Oil Co.'s No. 1 Conzelman, Sec. 22-15s-23e. Loc.

Bateman Lake—St. Mary Parish

Texas Co.'s No. 3 State, Sec. 16s-12e. 7-in. csg. 10,970 ft.; drlg. sh. 10,986 ft.

Texas Co.'s No. 3 Wax Bayou, Sec. 21-16s-12e. 7-in. csg. 10,984 ft.; T.D. 11,127 ft.; rec. 275 ft. of oil 10,879-10,900 ft.; D.S. stk.; fsg.

Texas Co.'s No. 4 Wax Bayou, Sec. 21-16s-12e. T.D. 11,007 ft.; 7-in. csg. 11,003 ft.; P.B. 6,910 ft.; perf. csg. 6,885-6,900 ft.; rec. S.W.; drlg. out cmt.

Baton Rouge—East Baton Rouge Parish

Guaranty Oil Co.'s No. 2 Morgan, Sec. 65-7s-1w. T.D. 6,530 ft.; 5½-in. csg. 6,450 ft.; swbd. S.W.; S.D.

Wm. Helis' No. 8 Nelson, Sec. 36-7s-1w. Drlg. sdy. sh. 5,220 ft.

Sugarfield Oil Co.'s No. 2 McDonald Community, Sec. 46-7s-1e. T.D. 7,220 ft.

Bay St. Elaine—Terrebonne Parish

Texas Co.'s No. 3 L.L.&E., Sec. 18-22s-18e. 7-in. csg. 6,000 ft.; drlg. sh. 6,127 ft.

Bayou Blue—Iberville Parish

Superior Oil Co.'s No. 2 Schwing Lbr. & Shingle Co., Sec. 74-9s-10e. Drlg. sdy. sh. 4,930 ft.

Bayou Choctaw—Iberville Parish

Standard Oil Co. of La.'s No. 2 Cypress, Sec. 28-8s-11e. 10¾-in. csg. 2,250 ft.

Bayou des Glaise—Iberville Parish

Humble O. & R. Co.'s No. 2-B Wilberts, Sec. 78-8s-8e. 10¾-in. csg. 2,854 ft.; drlg. sd.&sh. 7,454 ft.

Black Bayou—Cameron Parish

Shell Oil Co., Inc.'s No. 44 Watkins, Sec. 7-12s-12w. S.D. 5,826 ft., salt.

Caillou Island—Terrebonne Parish

Texas Co.'s No. 64 State, Sec. 20-23s-20e. T.D. 5,700 ft., salt; 7-in. csg. 5,682 ft.

Texas Co.'s No. 65 State, Sec. 17-23s-20e. Drlg. sdy. sh. 5,469 ft.

Cameron Meadows—Cameron Parish

Magnolia Pet. Co.'s No. 27 Cameron Meadows, Sec. 21-14s-13w. R.U.

Chacahoula—La Fourche Parish

Sun Oil Co.'s No. 1 Cypress, Sec. 75-15s-15e. 13⅜-in. csg. 1,842 ft.; T. salt 6,072 ft.; T.D. 6,088 ft.; P.B. 2,100 ft.; sdtrkd.; T.D. 6,553 ft.; fsg.; sdtrkd.; T.D. 5,544 ft.; P.B. to sdtrk.; T.D. 7,271 ft.; sdtrkd.; T.D. 7,426 ft.; P.B. 4,075 ft.; S.D.

Sun Oil Co.'s No. 7 Dibert, Stark & Brown Cypress Co., Sec. 70-15s-15e. Drlg. sh. 5,486 ft.

Chalkley Field—Cameron Parish

Shell Oil Co., Inc.'s No. 6 Hanzen, Sec. 21-12s-6w. T.D. 8,951 ft.; perf. csg. 8,910-33 ft.; I.P. 880 B.P.D.; ¼-in. ck. well went to S.W.; P.B. 8,940 ft.; fsg.

Shell Oil Co., Inc.'s No. 7-A Hanzen, Sec. 20-12s-6w. R.U.

Union Sulphur Co.'s No. 1 Sweet Lake Ld. Co., Sec. 13-12s-7w. Drlg. sh. 9,231 ft.

Chenevville—Rapides Parish

S. W. Richardson's No. 9 Well, Sec. 53-1s-2e. T.D. 6,591 ft.; 5½-in. csg. 6,495 ft.; drld. out cmt.; perf. csg. 5,640-60 ft. and 5,670-5,715 ft.; I.P. 326 B.P.D.; ¼-in. ck.

S. W. Richardson's No. 10 Well, Sec. 54-1s-2e. Drlg. 2,030 ft.

Darrow—Ascension Parish

Humble O. & R. Co.'s No. 28 Community, Sec. 30-10s-2e. Drlg. sh. 1,520 ft.

Humble O. & R. Co.'s No. 29 Community, Sec. 30-10s-2e. Loc.

Humble O. & R. Co.'s No. 17 Gumbel, Sec. 36-10s-2e. T.D. 8,570 ft.; P.B. 7,389 ft.; sdtrkd.; T.D. 7,503 ft.; P.B.; sdtrkd.; T.D. 8,341 ft.; 5½-in. csg. 8,339 ft.; perf. csg. 8,274-86 ft.; started making S.W.; sdtrkd.; T.D. 8,496 ft.; abd.

Kiva Oil Co.'s No. 1 Dupiessis, Sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co.'s No. 11 State, Sec. 32-21s-16e. 10¾-in. csg. 1,781 ft.; T.D. 6,816 ft.,

salt; T. salt 6,807 ft.; P.B.; sdtrkd.; drlg. sh.&L. 5,885 ft.

Edgerly—Calcasieu Parish

Emerson Oil Corp.'s No. 3 Stanolind fee, Sec. 28-9s-11w. Drk.

Eola—Avoyelles Parish

Amerada Pet. Corp.'s No. 3 Avoyelles, Sec. 5-2s-3e. Drk.
Amerada Pet. Corp.'s No. 1-A Dent, Sec. 10-2s-2e. Drlg. sdy. sh. 7,767 ft.
Amerada Pet. Corp.'s No. 3 Dent, Sec. 10-2s-2e. Cg. sd. 8,540 ft.
Amerada Pet. Corp.'s No. 3 Irion, Sec. 6-2s-3e. R.U.
Amerada Pet. Corp.'s No. 1 Monchau, Sec. 1-2s-2e. T.D. 8,573 ft.; tstg.
Hany Bass & Lake's No. 1 Ritchie Grocery, Sec. 3-1s-3e. Loc.
Gulf Oil Corp.'s No. 1 Mouliere, Sec. 1-2s-2e. T.D. 8,575 ft.; 5½-in. csg. 8,572 ft.; I.P. 665 B.P.D.; ¼-in. ck.
Gulf Oil Corp.'s No. 2 Mouliere, Sec. 1-2s-2e. Loc.
G. R. Kenedy's No. 1 Josie Hudson, Sec. 1-2s-2e. R.U.
Magnolia Pet. Co.'s No. 1 O. Q. Foster, Sec. 6-2s-3e. R.U.
S. W. Richardson's No. 10 Haas Inv. Co., Sec. 7-2s-3e. Drlg. sh.&sd. 8,420 ft.
Sun Oil Co.'s No. 3 Townsend, Sec. 8-2s-3e. T.D. 8,572 ft.; P.B.; sdtrkd.; T.D. 8,570 ft.; perf. csg. 8,502-70 ft.

Fausse Point—Iberia Parish

Sun Oil Co.'s No. 1 Planters Lbr. Co., Sec. 27-11s-8e. R.U.
Texas Co.'s No. 7 State, Sec. 35-11s-8e. R.U.

Garden Island—Plaquemines Parish

Texas Co.'s No. 40 State-Garden, Sec. 38-23s-33e. T.D. 5,760 ft.; 7-in. csg. 5,751 ft.; perf. csg. 5,300-35 ft.; I.P. 496 B. P.D.; ¼-in. ck.
Texas Co.'s No. 42 State, Sec. 38-23s-33e. Drlg. 723 ft.

Gibson—Terrebonne Parish

Shell Oil Co., Inc.'s No. 8 Pelican, Sec. 35-17s-15e. T.D. 8,650 ft.; rmg.

Gillis—Calcasieu Parish

Fohs Oil Co.'s No. 2-A M. P. Erwin, Sec. 14-9s-8w. Drk.

Golden Meadow—La Fourche Parish

Bateman Drlg. Co.'s No. 1 Harry Louviere, Sec. 9-19s-22e. T.D. 5,560 ft.; 5½-in. csg. 5,260 ft.; perf. csg. 5,150-80 ft.; S.D.
Bennett O. & R. Co.'s No. 3 Authement, Sec. 12-19s-22e. Loc.
Bennett O. & R. Co.'s No. 1 Philozate, Sec. 12-19s-22e. T.D. 8,605 ft.; perf. csg. 8,360-8,400 ft.; blew out, flwg. oil and gas.
Berkshire Oil Co.'s No. 1 Malgom, Sec. 2-19s-22e. Drlg. sh. 1,862 ft.
Brown & Woods' No. 1 S. Hogan, Sec. 9-19s-22e. T.D. 2,710 ft.; P.B. to 1,500 ft.; sdtrkd.; T.D. 2,672 ft.; 7-in. csg. on bttm.; perf. csg. 2,650-65 ft.; would not flow; S.D.
Taylor Fithian's No. 1 Cheramie, Sec. 12-19s-22e. R.U.
Wm. Helis' No. 3 Gaspard, Sec. 9-19s-22e. 6-in. csg. 2,655 ft.; T.D. 2,664 ft.; sanded up; S.D.
Geo. Lilly's No. 1 Collins, Sec. 12-19s-22e. T.D. 5,500 ft.; 5-in. csg. 5,498 ft.; perf. csg. 5,455-60 ft.; I.P. 237 B.P.D.; ¼-in. ck.
M. H. Marr et al's No. 2 B. & D. unit, Sec. 17-19s-22e. Loc.
M. H. Marr et al's No. 4 Adam Terrebonne, Sec. 9-19s-22e. 10¾-in. csg. 670 ft.
Martex Oil Corp.'s No. 1-C Rebstock Community, Sec. 2-19s-22e. T.D. 5,226 ft.; 7-in. csg. 5,226 ft.
Martex Oil Co.'s No. 3-A Rebstock, Sec. 2-19s-22e. T.D. 2,665 ft.; 5-in. csg. 2,665 ft.; perf. csg. 2,630-62 ft.; would not flow; S.D.
S. Rhodes Drlg. Co.'s No. 4 Falgout Holding, Sec. 9-19s-22e. Drlg. sh.&sd. 3,945 ft.
Fred Shield's No. 1 Lafont, Sec. 2-19s-22e. 10¾-in. csg. 103 ft.; S.D.
Terouche Oil Co.'s No. 2 Cheramie, Sec. 12-19s-22e. Drk.
Texas Co.'s No. 7 Falgout Holding Co., Sec. 9-19s-22e. T.D. 7,940 ft.; 7-in. csg. 7,940 ft.; I.P. 518 B.P.D.; ¼-in. ck.
Texas Co.'s No. 11 Falgout Holding Co., Sec. 9-19s-22e. T.D. 5,175 ft.; run 7-in. csg.
Texas Co.'s No. 9 Golden Meadow, Sec. 78-19s-21e. T.D. 5,175 ft.; 7-in. csg. 5,158 ft.; sanded up; I.P. 325 B.P.D.; 9/32-in. ck.
Texas Co.'s No. 10 Golden Meadow, Sec. 78-19s-21e. R.U.
Texas Co.'s No. 3 La Terre Co., Sec. 1-20s-21e. T.D. 5,673 ft.; sdtrkd.; drlg. sh. 10,184 ft.

Grand Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 7-A Grand Prairie Lv. Dist., Sec. 5-20s-19e. Loc.
Gulf Oil Corp.'s No. 8-A Grand Prairie Dist., Sec. 5-20s-19e. Loc.
Gulf Oil Corp.'s No. 4 State, Sec. 20-19s-19e. Drlg. sh. 6,520 ft.
Texas Co.'s No. 1 State-Lookout Pass, Sec. 48-20s-18e. Loc.
Texas Co.'s No. 2 State-Lookout Pass, Sec. 31-19s-19e. T.D. 10,342 ft.; 7-in. csg. 10,342 ft.; rec. S.W. 8,732-75 ft.
Gulf Oil Corp.'s No. 1 State QQ, Sec. 6-20s-19e. Drlg. sdy. sh. 8,521 ft.

Grand Lake—Cameron Parish

Amerada Pet. Corp.'s No. 4 State, Twp. 13s-4w. R.U.
Amerada Pet. Corp.'s No. 5 State, Twp. 13s-14w. Drlg. sh. 2,216 ft.
Superior Oil Co.'s No. 8 State-Lake, Twp. 13s-4w. Loc.
Superior Oil Co.'s No. 7 State, Sec. 11-13s-4w. T.D. 8,990 ft.; 7-in. csg. 8,990 ft.; perf. csg. 8,502-05 ft.; I.P. 275 B. P.D.; 10/64-in. ck.

Hackberry—Cameron Parish

Harrison & Abercrombie's No. 1 Doiron, Sec. 37-12s-10w. 10¾-in. csg. 1,441 ft.; drlg. sh. 6,765 ft.
Stanolind O. & G. Co.'s No. 21-A Cameron Sch. Bd., Sec. 16-12s-10w. Drlg. sh. 8,657 ft.
Superior Oil Co.'s No. 9 Benson Vincent, Sec. 30-12s-10w. 9⅝-in. csg. 950 ft.; drlg. sh. 5,286 ft.
Texas Co.'s No. 17-B State, Twp. 12s-9w. T.D. 6,850 ft.; 5-in. csg. 6,790 ft.; perf. csg. 6,680-6,737 ft.; W.O.S.R.
Texas Co.'s No. 29-B State, Twp. 12s-9w. T.D. 8,005 ft.

Happytown—Iberville Parish

Shell Oil Co., Inc.'s No. 1 Schwing Lbr. & Shingle Co., Sec. 85-7s-8e. Drlg. sh. 6,705 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co.'s No. 4 State, Sec. 23-17s-9e. Driving piling.

Jeanerette—St. Mary Parish

Herton Oil Co.'s No. 5 Roane, Sec. 38-13s-9e. T.D. 10,789 ft.; 7⅝-in. csg. 10,260 ft.; P.B. 6,675 ft.; prep. to test.

Jefferson Island—Iberia Parish

Texas Co.'s No. 4 Jefferson Island Salt, Sec. 58-12s-5e. 7⅝-in. csg. 8,494 ft.; T.D. 8,646 ft.; fsg.
Texas Co.'s No. 3 State, Twp. 12s-5e.-Drlg. sdy. sh.&L. 6,012 ft.

Jennings—Acadia Parish

Brown & Sisson's No. 1 Arnaudet, Sec. 47-9s-2w. Drlg. sdy. sh. 1,805 ft.
Glassell-Glassell's No. 8 McFarlain, Sec. 41-9s-2w. Drk.
Glassell-Glassell's No. 8 Trusher, Sec. 47-9s-2w. T.D. 9,165 ft.; sdtrkd.; 7-in. csg. 8,750 ft.; T. salt 10,735 ft.; T.D. 10,766 ft.; perf. csg. 8,638-43 ft.
Gulf Oil Corp.'s No. 42 Arnaudet, Sec. 47-9s-2w. 7-in. csg. 7,961 ft.; T.D. 7,983 ft.
Shell Oil Co., Inc.'s No. 10 Community, Sec. 40. Loc.
Stanolind O. & G. Co.'s No. 117 Crowley O. & Min. Co., Sec. 48-9s-2w. Drlg. sh. &sd. 4,463 ft.
Stricker-Pharis et al's No. 1 Gulf fee, Sec. 45-9s-2w. 16-in. csg. 60 ft.; drlg. sh. 6,836 ft.

Lafitte—Jefferson Parish

Texas Co.'s No. 15 Lafitte, Sec. 20-17s-24e. T.D. 10,135 ft.; 7-in. csg. 10,123 ft.; perf. csg. 9,940-70 ft.; tstg.
Texas Co.'s No. 16 L.L.&E., Lafitte, Sec. 17-17s-24e. Loc.
Texas Co.'s No. 6-A Madison Realty Co., Sec. 17-17s-24e. Dredge canal.
Texas Co.'s No. 5 Marrero, Sec. 21-17s-24e. T.D. 10,180 ft.; 7-in. csg. 9,810 ft.; perf. csg. 9,710-40 ft.; I.P. 803 B. P.D.; ¼-in. ck.
Texas Co.'s No. 13 Rigolet Cooperative Fur Co., Sec. 29-17s-24e. Drlg. sh. 2,730 ft.
Texas Co.'s No. 3 State, Bayou Norman, Sec. 21-17s-24e. Drlg. sdy. sh. 9,357 ft.

La Fourche Crossing—La Fourche Parish

Mikton Oil Co.'s No. 2 Martinez, Sec. 132-15s-17e. 11¾-in. csg. 2,687 ft.; T.D. 4,904 ft.; P.B. 4,700 ft.; T.D. 10,998 ft.; 5½-in. csg. 10,042 ft.; perf. csg. 10,018-24 ft.; flwd. gas and dist.; retstg.

Lake Hermitage—Plaquemines Parish

Gulf Oil Corp.'s No. 11 La Fourche Basin Lv. Dist., Sec. 11-18s-25e. P.B. 1,395 ft.; sdtrkd.; drlg. sdy. L. 2,842 ft.

Lake Mongoulois—St. Martin Parish

Texas Co.'s No. 8 State, Sec. 10-10s-9e. Drk.

Lake Pelto—Terrebonne Parish

Texas Co.'s No. 30 Lake Pelto, Sec. 7-23s-18e. T.D. 5,271 ft.; salt; sdtrkd.; T. salt 5,243 ft.; P.B. 3,119 ft.; drlg. sh. 4,915 ft.

La Place—St. James Parish

Pan American Prod. Co.'s No. 1 Godchaux Sugars, Sec. 97-11s-7e. 10¾-in. csg. 2,814 ft.; drlg. bkn. L. 5,956 ft.

New Iberia—Iberia Parish

Acadian Prod. Co.'s No. 4 E. T. Weeks, Sec. 51-12s-7e. Loc.
Canal Oil Co.'s No. 3 Bernard, Sec. 54-12s-7e. T.D. 4,653 ft.; 7-in. csg. 4,436 ft.
Wm. Helis' No. 12 Bolivar, Sec. 56-12s-7e. Drlg. sh. 88 ft.
Wm. Helis' No. 1-A Bullock, Sec. 25-12s-7e. R.U.
Wm. Helis' No. 9 Schwing, Sec. 56-12s-7e. T.D. 855 ft.; 7-in. csg. 825 ft.; W. O.S.R.
Wm. Helis' No. 10 Schwing, Sec. 56-12s-7e. Drlg. sh. 3,340 ft.
Texas Co.'s No. 2 Bryant, Sec. 25-12s-7e. R.U.
Texas Co.'s No. 7 Bryant, Sec. 25-12s-7e. Drk.
Texas Co.'s No. 15 Duke, Sec. 26-12s-7e. Drlg. sh. 3,961 ft.
Texas Co.'s No. 2 Hebert, Sec. 25-12s-7e. T.D. 1,935 ft.; 10¾-in. csg. 1,935 ft.; drlg. sdy. sh. 4,747 ft.
Texas Co.'s No. 1 H. Perry Walet, Sec. 2-12s-7e. T.D. 9,116 ft.; 7-in. csg. 8,838 ft.; perf. csg. 7,998-7,900 ft.; W. S.R.
Texas Co.'s No. 2 Smith, Sec. 71-12s-7e. Drlg. sdy. L. 7,732 ft.

North Crowley—Acadia Parish

Humble O. & R. Co.'s No. 1 Reiners, Sec. 45-8s-1e. Cg. sd. 8,574 ft.
Humble O. & R. Co.'s No. 7 Williams, Sec. 33-8s-1e. T.D. 8,813 ft.

Paradis—St. Charles Parish

Jolly Pet. Co.'s No. 1 Matthews Oliveira, Sec. 4-14s-20e. Drlg. sh. 2,065 ft.
Texas Co.'s No. 3 L.L.&E., Paradis, Sec. 8-14s-20e. 10¾-in. csg. 1,448 ft.; T.D. 10,490 ft.; 7-in. csg. on bttm.; cd. O.S. 10,188-10,256 ft.; drlg. sd.&sh. 11,235 ft.

Plumb Bob—St. Martin Parish

Texas Co.'s No. 13 St. Martin Ld. Co., Sec. 21-8s-7e. Drlg. sh.&L. 6,771 ft.

Port Barre—St. Landry Parish

Gulf Oil Corp.'s No. 17 Wilson-Broach, Sec. 4-6s-5e. T.D. 4,861 ft.; P.B. 2,061 ft.; sdtrkd.; T.D. 5,704 ft., salt; P.B. sdtrkd.; T.D. 5,125 ft.; 5½-in. csg. 5,125 ft.; I.P. 300 B.P.D.; ½-in. ck.
McDannald Oil Co.'s No. 2 Futral, Sec. 20-6s-5e. T.D. 5,514 ft.; sdtrkd.; drlg. sh. 4,678 ft.
McDannald Oil Co.'s No. 1 Sibille, Sec. 7-6s-6e. Bldg. rd.
McDannald Oil Co.'s No. 2 Sibille, Sec. 7-6s-6e. Loc.
Y. D. Spill's No. 1 Gaudet, Sec. 4-6s-5e. S.D. 4,700 ft.
Texas Co.'s No. 27 Botney Bay, Sec. 4-6s-5e. T.D. 6,239 ft.; tstg.
Westgate-Greenland Oil Co.'s No. 1 Jeansenne, Sec. 20-6s-5e. 7-in. csg. 5,286 ft.; perf. csg.; T.D. 5,314 ft.; S.D.

Potash—Plaquemines Parish

Humble O. & R. Co.'s No. 42 Orleans Lv. Dist., Sec. 14-18s-15e. Drlg. sh. 3,967 ft.

Quarantine Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 6-A Orleans Lv. Bd., Sec. 7-19s-17e. Driving piling.
Gulf Oil Corp.'s No. 9 State QQ, Sec. 18-19s-17e. T.D. 8,634 ft.; 7-in. csg. 8,090 ft.; P.B. 8,175 ft.; I.P. 269 B.P.D.; ¼-in. ck.
Gulf Oil Corp.'s No. 12 State, Sec. 18-19s-17e. Drlg. sh. 7,983 ft.

Raceland—La Fourche Parish

Amerada Pet. Corp.'s No. 5 South Coast Corp., Sec. 34-15s-19e. Drlg. sh. 1,830 ft.

Sorrento—Ascension Parish

Sorrento Synd.'s No. 2 L. L. Bernard, Sec. 22-10s-4e. R.U.

South Jennings—Jeff Davis Parish

Stanolind O. & G. Co.'s No. 1 Clare E. Landry and A. A. Hebert. T.D. 9,638 ft.; 5½-in. csg. 9,487 ft.
Stanolind O. & G. Co.'s No. 1 Morgan, Sec. 15-10s-3w. Drlg. sh. 8,560 ft.
Stanolind O. & G. Co.'s No. 1 L. Remage, Sec. 9-10s-3w. Drlg. sh. 7,930 ft.

Sweet Lake—Cameron Parish

Pure Oil Co.'s No. 15 Yount-Lee, Sec. 12-13s-8w. Drlg. sh. 6,196 ft.

Valentine—La Fourche Parish

Wm. Helis' No. 6 Valentine Sugars, Inc., Sec. 2-17s-20e. Drlg. sh. 759 ft.

Venice—Plaquemines Parish

Tide Water Asso. Oil Co.'s No. 7 Buras Lv. Bd., Sec. 22-21s-30e. 16-in. csg. 205 ft.; drlg. sdy. sh. 5,632 ft.

Vermilion Bay—Iberia Parish

Texas Co.'s No. 4-B Vermilion Bay, Twp. 16s-5e. T. salt 5,855 ft.; T.D. 5,860 ft.; 11¾-in. csg. 4,454 ft.

Villa Platte—Evangeline Parish

Amerada Pet. Corp.'s No. 1 Leona O. Roberie, Sec. 1-4s-2e. Drlg. sh. 3,630 ft.
Continental Oil Co.'s No. 3 Corell, Sec. 36-3s-2e. T.D. 9,140 ft.; fsg.
Continental Oil Co.'s No. 2 B. G. Fontenot, Sec. 41-4s-2e. T.D. 8,414 ft.; fsg.
Continental Oil Co.'s No. 6 Fontenot, Sec. 41-4s-2e. Drlg. sh. 7,320 ft.
Continental Oil Co.'s No. 5 Haas, Sec. 44-3s-2e. Drlg. sh. 2,067 ft.
Continental Oil Co.'s No. 5 Oscar Pitre, Sec. 40-4s-2e. Drlg. sh. 8,912 ft.
Continental Oil Co.'s No. 1 Adam Tate, Sec. 41-4s-2e. Drlg. sh. 3,720 ft.
Continental Oil Co.'s No. 1 David Tate, Sec. 36-3s-2e. Drlg. sh. 9,902 ft.
Continental Oil Co.'s No. 1 J. E. Vidrine, Sec. 1-4s-2e. T.D. 5,637 ft.; fsg.
Danciger O. & R. Co.'s No. 2 J. E. Vidrine, Sec. 1-4s-2e. R.U.

West Lake Verret—St. Mary Parish

Shell Oil Co., Inc.'s No. 4 Jeanerette. 7⅝-in. csg. 10,683 ft.; drlg. sh. 11,734 ft.

White Castle—Iberville Parish

Shell Oil Co., Inc.'s No. 1 Forest Home. Drlg. sh. 5,890 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co.'s No. 2 Norton, Sec. 12-9s-6w. T.D. 8,127 ft.; tstg.
Union Sulphur Co.'s No. 1 Trimble, Sec. 7-9s-5w. T.D. 9,515 ft.; W.O.C.
Woodlawn Oil Corp.'s No. 1 Hebert, Sec. 1-9s-6w. T.D. 9,543 ft.; 7-in. csg. 9,170 ft.; perf. csg. 9,189-93 ft.; flwd. S.W. and dist.; well flwd. 100% S.W.; pild. tbg.; set cmt. retainer at 9,175 ft.; sqzd. perf.; reperf. csg. 8,139-42 ft.; flwg. 16 bbl. dist. per day; ⅝-in. ck.

S. LOUISIANA WILDCATS

Acadia Parish

Humble O. & R. Co.'s No. 1 Leger, Sec. 83-8s-2e. Drk.
Vincent, Welch & E. J. Nicklos' No. 1 L. Ruppert, Sec. 21-7s-1w. Drlg. sh. 7,050 ft.

Assumption Parish

Falcon-Seaboard Drlg. Co.'s No. 1 Alex Simoneaux, Sec. 43-12s-13e. 18⅝-in. csg. 60 ft.; T.D. 1,905 ft.; run 11¾-in. csg.

Beauregard Parish

Atlantic Ref. Co.'s No. 1 Lutcher Moore Lbr. Co., Sec. 13-5s-12w. Drlg. sh. 9,688 ft.
Atlantic Ref. Co.'s No. 1 Lutcher Moore, Sec. 22-3s-11w. Loc.
Atlantic Ref. Co.'s No. 1 Rice Ld. & Lbr. Co., Sec. 22-3s-11w. Loc.
Atlantic Ref. Co.'s No. 1 D. A. Whitmer, Sec. 26-3s-11w. 10¾-in. csg. 2,037 ft.; T. Cockfield sd. 5,684 ft.; cg. sh. 8,150 ft.
California Oil Co.'s No. 3 Long Bell Lbr Co., Sec. 24-5s-11w. Drlg. sh. 50 ft.

Calcasieu Parish

Edson Pet. Co.'s No. 1 Edgwood Ld. & Logging Co., Sec. 33-7s-10w. R.U.

Cameron Parish

Phillips Pet. Co.'s No. 1 Miami Corp., Sec. 11-4s-6w. T.D. 10,195 ft.; well tried to blow out; stk. D.S.; prep. to sdtrk.
Superior Oil Co.'s No. 1 State, Calcasieu Lake, Twp. 14s-9w. T.D. 1,866 ft.; fsg.

East Baton Rouge Parish

Farris & Golding Drlg. Co.'s No. 1 Paulet, Sec. 58-8s-1e. Loc.

Iberia Parish

Plymouth Oil Co. et al's No. 1 Lynch McHugh, Sec. 13-12s-10e. 10¾-in. csg 2,519 ft.; T.D. 10,021 ft.; 7-in. csg. 8,268 ft.; W.O.C.

Jeff Davis Parish

Continental Oil Co.'s No. 1 Niblett, Sec. 1-11s-5w. 13⅜-in. csg. 2,085 ft.; drlg. sd.&sh. 11,619 ft.
H. M. Naylor's No. 1 Acadia Dev. Co., Sec. 12-10s-2w. R.U.
Union Sulphur Co.'s No. 1 Somson, Sec. 35-7s-4w. Drlg. sh. 6,875 ft.

Jefferson Parish

Vendome Pet. Co.'s No. 1 Coulon, Sec. 15-15s-23e. Canal comp.

La Fourche Parish

Ernest Cockrell's No. 1 La Fourche Ld. Co., Sec. 32-18s-22e. Driving piling.
Gulf Oil Corp.'s No. 1-B Bowie Lbr. Co., Sec. 69-15s-19e. Bldg. drk.
Humble O. & R. Co.'s No. 1 Caldwell Sugars, Inc., Sec. 115-14s-15e. 13⅜-in. csg. 2,988 ft.; drlg. sh. 6,670 ft.
Tide Water Asso. Oil Co.'s No. 1 Delta Farms, Inc., Sec. 6-17-23e. T.D. 11,850 ft.; P.B. T.D. 11,810 ft.; perf. csg. 11,780-11,800 ft.; rec. 30 ft. of dist., 400 ft. drlg. mud; P.B. 11,325 ft.; perf. csg. 11,290-11,305 ft.; rec. S.W.; perf. csg. 11,270-80 ft.; 85 stands oil and S.W.; perf. csg. 8,908-18 ft.; rec. 2 jts. dist.; sqzd. perf.; perf. csg. 8,917-22 ft.; 30-min. D.S.T.; 2,800 lb. W.P.; rec. 4 jts. dist.; sqzd.; perf. csg. 8,750-60 ft.; 26-min. D.S.T. tstd. 2,200 lb. W.P.; made sqz. job; drill out cmt. to 11,280 ft.; prep. to perf. csg.; made sqze. job 11,270-11,305 ft.

Livingston Parish

Roderick Tower, Inc.'s No. 1 James Pirie, Sec. 41-7s-3e. Drlg. sh. 6,080 ft.

Orleans Parish

W. T. Burton's No. 1 L.&N.R.R., Sec. 18 11s-15e. T.D. 10,405 ft.; P.B. 10,150 ft.
W. T. Burton's No. 2 State, Lake Pontchartrain, Twp. 10s-13e. Drlg. sh. 9,175 ft.

Plaquemines Parish

California Co.'s No. 1 Delta Minerals, Sec. 2-15s-24e. 13⅜-in. csg. 2,028 ft.; drlg. sh. 8,427 ft.
Gulf Oil Corp.'s No. 1-D Buras Lv. Dist. Sec. 6-23s-3e. 9⅝-in. csg. 8,204 ft.; 7-in. csg. 10,103 ft.; T.D. 10,138 ft.; well flwd. S.W.; S.D.

Rapides Parish

S. W. Richardson's No. 1 Hillyer-Edwards, Sec. 21-1s-3w. 10¾-in. csg. 1,565 ft.; top Sparta sd. 7,025-78 ft.; T.D. 9,340 ft.; abd.
Smith & Aarnes' No. 1 Eota Realty Co., Sec. 12-4n-3e. Drk.; abd.

St. Bernard Parish

Gulf Ref. Co.'s No. 4 State-R.R. (Lake Borgne), Twp. 12s-15e. 9⅝-in. csg. 8,161 ft.; T.D. 10,632 ft.; P.B. 9,700 ft.; rmd. to 9,658 ft.; loss core bbl.; P.B. sdtrkd. 8,912 ft.; T.D. 10,528 ft.; 7-in. csg. 10,494 ft.; drlg. sh.&L. 11,294 ft.

St. Charles Parish

R. H. Parker et al's No. 1 C. L. Thompson, Sec. 87-13s-20e. 10¾-in. csg. 2,599 ft.; drlg. sh. 8,186 ft.

St. Martin Parish

Wm. Helis' No. 1 Rycade Oil Co., Sec. 33-9s-7e. T.D. 8,899 ft.; sdtrkd. 7,303 ft.; cg. 9,386 ft.

St. Mary Parish

Perry S. Cooney's No. 1 A. W. Allain, Sec. 46-13s-9e. S.D. 2,600 ft.
Joe Domingue's No. 1 Allain, Sec. 46-13s-9e. Drlg. sh. 1,610 ft.

Texas Co.'s No. 1 State. Cote Blanche Twp. 16s-7e. Cd. sdy. sh. S.S.O. 7,334-87 ft.; T.D. 8,685 ft.

Vermillion Parish

La. Ld. & Explin. Co.'s No. 1 Walter White hrs., Sec. 17-15s-1e. Drlg. 177 ft.

Texas Co.'s No. 1 Vermilion Par. Sch. Bd., Sec. 16-13s-4e. T.D. 9,923 ft.; 7⅝-in. csg. 9,918 ft.; T.D. 10,595 ft.; P.B. 10,250 ft.; sdtrkd. 10,300 ft.; cd. S.W. sd. 10,659-79 ft.; T.D. 11,762 ft.; fsg. for sidewall sampler.

Terrebonne Parish

Barnsdall Oil Co.'s No. 1 Nelson, Sec. 2-21s-11e. 10¾-in. csg. 2,767 ft.; 8¾-in. csg. 10,505 ft.; T.D. 11,288 ft.; sdtrkd.; drlg. sh. 10,863 ft.

Texas Co.'s No. 4 State, Coon Point, in Lake Caillou, Twp. 23s-14e. Drlg. sh. &L. 5,655 ft.

TEXAS

Week Ended March 9

GULF COAST FIELDS

Anchor—Brazoria County

Humble O. & R. Co.'s No. 1 R. H. Carr, Blk. 62. 9⅝-in. csg. 6,950 ft.; cg. sh. 10,383 ft.

Humble O. & R. Co.'s No. 1 Crockett, J. de Jesus Valderas Sur. 13⅜-in. csg.; drlg. sh. 9,967 ft.

Humble O. & R. Co.'s No. 1 Galznick & Taylor, J. de Jesus Valderas Sur. 9⅝-in. csg. 6,953 ft.; T.D. 10,994 ft.

Humble O. & R. Co.'s No. 1 Helm & Holland, S. Marsh Sur. Loc.

Glenn McCarthy's No. 1 Galznick, Valderas Sur. T.D. 10,495 ft.

Glenn McCarthy's No. 1 Neidringhaus, J. Bradley Sur. 13⅜-in. csg. 926 ft.; drlg. sh. 9,970 ft.

Glenn McCarthy's No. 1 Kate and Laura Yocum, J. D. Valderas Sur. Drlg. 2,-630 ft.

Sun Oil Co.'s No. 1 Morris Stern, Shubal Marsh Sur. 18⅝-in. csg. 128 ft.; drlg. 3,026 ft.

Old Ocean—Brazoria County

Harrison & Abercrombie's No. 8 Armstrong, Polly & Chance Sur. Drlg. sd. &sh. 9,820 ft.

Harrison & Abercrombie's No. 7 Bernard River Ld. Dev. Co., C. Breen Sur. Drlg. sh.&sd. 10,380 ft.

Harrison & Abercrombie's No. 3 Larsen, Breen Sur. T.D. 10,535 ft.; tstg.

Stanolind O. & G. Co.'s No. 1 Hughes, C. Breen Sur. Drlg. 150 ft.

Sun Oil Co.'s No. 4 Borsodi, C. Breen Sur. 13⅜-in. csg. 1,520 ft.

Sun Oil Co.'s No. 4 McCampbell, C. Breen Sur. 13⅜-in. csg. 1,505 ft.; 9⅝-in. csg. 7,010 ft.; drlg. sd.&sh. 10,393 ft.

Seabreeze—Chambers County

Sun Oil Co.'s No. 1 Samuelson & Whitney, T.&N.O. Sur. 131. Cored sd., oil odor 8,417-18 ft. and 8,422-23 ft.; T.D. 8,469 ft.; 7-in. csg. 8,469 ft.; perf. csg. 8,396-8,414 ft. and 8,423-28 ft.

Big Creek—Fort Bend County

Merrimac Oil Corp.'s No. 1 George, B. Wickson Sur. (SW flank). Spd. and S.D.

Rosenberg—Fort Bend County

Humble O. & R. Co.'s No. 1 R. Kroesche, H.&T.C. Sur. Drk.

Humble O. & R. Co.'s No. 1 Skripka, C. N. Simpson Sur. T.D. 8,499 ft.; 7-in. csg. 8,327 ft.; pulling screen to retest.

Caplen—Galveston County

Sun Oil Co.'s No. 1-26 State, S. F. Hughes Sur. Sdtrkd.; T.D. 7,660 ft.; 7-in. csg. 6,186 ft.

Sun Oil Co.'s No. 2-26 State, S. F. Hughes Sur. Loc.

Sun Oil Co.'s No. 3 Zinn-Forman Sur. 13⅜-in. csg. 100 ft.; T.D. 7,850 ft.; run csg.

League City—Galveston County

Phillips Pet. Co.'s No. 1 Dr. O. Patton (1 mi. E of production). Perf. csg. 9,177-97 ft.; flwd. S.W.; sqzd. perf.; C.O.

Phillips Pet. Co.'s No. 4 Stewart Title Guaranty Co., S. F. Austin Sur. 10¾-in. csg. 3,520 ft.; 7⅝-in. csg. 9,510 ft.; T.D. 11,270 ft.; well blew out; killed; rng. reversing tool 8,900 ft.

Clear Lake—Harris County

Humble O. & R. Co.'s No. 28-C West, Wm. Dobie Sur. T.D. 5,846 ft.

Humble O. & R Co.'s No. 34-C West, S. Murphy Sur. T.D. 5,843 ft.; tstg.

Friendswood—Harris County

Humble O. & R. Co.'s No. 3 Moore, A. Whitlock Sur. Comp.; no ga.

Fannett—Jefferson County

Gulf Oil Corp.'s No. 3 Bordages, J. Probarth Sur. Drlg. sh.&L. 7,490 ft.

Lovells Lake—Jefferson County

Humble O. & R. Co.'s No. 19 Broussard, C. Hillebrandt Sur. T.D. 7,675 ft.; comp. as gas well.

Humble O. & R. Co.'s No. 10 Jefferson Ld. Co., C. Hillebrandt Sur. Drlg. 1,-267 ft.

Humble O. & R. Co.'s No. 1 Oswald, M. Peviot Sur. Drlg. sh. 2,812 ft.

North Cheek—Jefferson County

Strake Pet., Inc.'s No. 1 J. H. Phelan, S. Stivers Sur. Drlg. 6,336 ft.

Strake Pet., Inc.'s No. 1 Pipkin, H.T. &B. Sur. 15. R.U.

South China—Jefferson County

J. K. Hughes Oil Co.'s No. 1-C Guiterman, C. T. Taylor Sur. 12. Spd.

Titanic Oil Co.'s No. 2-B Broussard, S. Miles Sur. Drlg. sh. 5,020 ft.

Titanic Oil Co.'s No. 2-B Guiterman, C. T. Taylor Sur. 12. 10¾-in. csg. 955 ft. T.D. 7,555 ft.; 5½-in. csg. on bttm.

Esperson—Liberty County

General Crude Oil Co.'s No. 9 Davis, D. Kokernot Sur. T.D. 8,314 ft.; well blew out, caught fire, cratered.

General Crude Oil Co.'s No. 20 Davis, A. McNeil Sur. Drlg. sh. 6,869 ft.

General Crude Oil Co.'s No. 11-B Esperson. Drlg. sh. 6,720 ft.

Martha—Liberty County

Stanolind O. & G. Co.'s No. 1 Garrow, I.&G.N.R.R. Sur. 7. Loc.

Stanolind O. & G. Co.'s No. 1 J. D. Ross, I.&G.N. Sur. 7. T.D. 8,164 ft.; 5½-in. csg. 8,160 ft.; perf. csg. 8,135-40 ft. flwd. oil and S.W.; reperf. csg. 8,092-96 ft.; tstg.

Segno—Polk County

Gulf Oil Corp.'s No. 4 Quinn, A. Morales Sur. R.U.

Gulf Oil Corp.'s No. 31 Wing, I.&G.N. Sur. 13. Drlg. sh.&L. 4,926 ft.

Gulf Oil Corp.'s No. 32 Wing, I.&G.N. Sur. 14. R.U.

Humble O. & R. Co.'s No. 21-BX Kirby Lbr. Co., H. Jackson Sur. R.U.

Spurger—Tyler County

Republic Prod. Co.'s No. 34 fee, N. Hurd Sur. Drlg. sh. 3,212 ft.

Republic Prod. Co.'s No. 1 fee, A. Sterne Sur. Loc.

Republic Prod. Co.'s No. 35 Wing, I.& G.N. Sur. 15. R.U.

Hilje—Wharton County

Texas Co.'s No. 2 Peters, E.T.R.R. Sur.. Sec. 101. Loc.

GULF COAST WILDCATS

Brazoria County

Glenn McCarthy's No. 1 E. W. K. Andrau, H.T.&B. Sur. 5. 10¾-in. csg. 3,-512 ft.; drlg. sh. 11,337 ft.

Glenn McCarthy's No. 2 Houston Farm Dev. Co., J. Perry & E. Austin Sur. 7. 10¾-in. csg. 3,492 ft.; drlg. sh. 11,151 ft.

Glenn McCarthy's No. 1 W. B. Munson, Samuel Carter Sur. R.U.

McDannald Oil Co.'s No. 1 S. A. Hatfield, R. B. Lytle Sur. 4, Lot 51. Drlg. sd. 7,306 ft.

Phillips Pet. Co.'s No. 1 McIlvaine, A.C. H.&B. Sur., Sec. 27. Loc

Titanic Oil Co.'s No. 2 S. E. Allen, J. G. and W. McNeil Sur. R.U.

Titanic Oil Co.'s No. 1 T. J. Poole, T.&W. Alley Lge. T. salt 1,900 ft.; T.D. 3,-925 ft.; fsg.

Chambers County

Geo. Anderson et al's No. 1 Veruna Lawrence, W. D. Smith Sur. T.D. 7,-215 ft.; S.W. sd.; 5½-in. csg. 7,215 ft.; perf. csg. 7,126-35 ft.; retstd.; rec. S.W. W.O.

Sun Oil Co.'s No. 1 Clara C. Smith, T.& N.O. Sur. 82. Drk.

Colorado County

Cockburn Oil Corp. No. 1 R. W. Ferrs, H. Chrisman Sur. Loc.

Shell Oil Co., Inc.'s No. 1 Plow Realty Co., Obediah K. Winn Sur. Loc.

Fayette County

F. J. Hynes et al's No. 1 A. B. Kerr, J. Parrott Sur. Loc.

Fort Bend County

H. C. Cockburn's No. 1 G. W. Burkett, Bundieck Sur. Loc.

Temple Hargrove et al's No. 1 Sugar Ld. Ind., A. Alcorn Sur. S.D. 2,900 ft.

Galveston County

Continental Oil Co.'s No. 1 Lobit-Cherardi, Perry & Austin Sur. T.D. 9,839 ft.; sdtrkd.; 7-in. csg. 9,998 ft.; T.D. 10,-743 ft.; abd.

Standard Oil Co.'s No. 1 State, Sec. 234, 10¾-in. csg. 2,001 ft.; T.D. 7,134 ft.; sdtrkd.; drlg. sh. 6,697 ft.

Standard Oil Co. of Texas' No. 61-54 State. Loc.

Sun Oil Co.'s No. 1 State, Sec. 178, 13⅜-in. csg. 2,032 ft.; drlg. sh. 5,860 ft.

Harris County

Gulf Oil Corp.'s No. 1 H. H. Roberts, A. Roberts Sur. T.D. 7,583 ft., S.D.

N. W. Hunter et al's No. 1 Green's Bayou Homesites, S. C. Hiroms Sur. 10¾-in. csg. 810 ft.; S.D. 4,350 ft.

Richard Rodgers et al's No. 1 B. G. Daugherty, W.C.R.R. Sur. Drlg. sh. 6,325 ft.

Jefferson County

Fidelity O. & Roy. Co.'s No. 1 J. J. Craigen, J. E. Broussard Sur. Drlg. sd. 8,-430 ft.

Hebert & Smith's No. 1 W. S. Clubb, J. L. Lawhorn Sur. R.U.

Merrimac Oil Corp.'s No. 1 State, Tr. 72, 50 ft. due E of Harwell's abd. hole. W.O.; R.U.

Liberty County

Gulf Oil Corp.'s No. 1 Kirby Lbr. Co., Hugh Means Sur. Drk.

Hebert & Smith's No. 1 W. E. Boyt, H. &T.C.R.R. Sur. T.D. 8,834 ft.; cleaned hole to 8,096 ft.; sdtrkd. 7,824 ft.; drlg. sh. 7,883 ft.

Matagorda County

Stanolind O. & G. Co.'s No. 1 General American Life Ins., J. C. Peyton Sur. Drlg. sd. 3,752 ft.

Texas Gulf Prod. Co.'s No. 1 Gulf Tex. Oil Co., Ira Ingram Sur. Drk.

Texas Co.'s No. 1 Taylor, Freeman George Sur. Drk.

Van M. Vincent's No. 1 J. F. McNabb Est., E. R. Wightman Lge. Loc.

Montgomery County

H. C. Cockburn et al's No. 1 Bender, Montgomery Co. Sch. Ld. and De Crow Sur. Loc.

Continental Oil Co.'s No. 1 Bender est., Montgomery Co. Sch. Ld. Sur. 13⅜-in. csg. 1,243 ft.; drlg. sh. 8,520 ft.

David B. MacDaniel's No. 1 Hattie O. Baldwin, Walker Co. Sch. Ld. Sur. 10¾-in. csg. 1,230 ft.; T.D. 8,900 ft., est.; D.S. stk.

Dick Schwab et al's No. 1 Foster est., De la Garza Sur. T.D. 8,250 ft.; abd.

West Conroe Oil Corp.'s No. 1 R. L. Caifee, H. N. McDillon Sur. S.D. 5,017 ft.; tstd. S.W. 4,516-78 ft.

Washington County

J. A. Deering's No. 1 C. W. Bohne, S. Gates Sur. Drlg. sh. 2,520 ft.

Mount Selman Oil Co.'s No. 1 Fritz Fuelberg, W. Lightfoot Sur. Drlg. 5,030 ft.

Wharton County

Cockburn Oil Corp.'s No. 1 Leverage, Jonathan Scott Sur. Drk.

O. C. Garvey's No. 1 T. N. Menefee, S. P. Middleton Sur. R.U.

Mackhank Oil Co.'s No. 1 F. W. Wilson, E.T.R.R. Sur. 101. Drlg. sh. 2,768 ft.

Magnolia Pet. Co.'s No. 1 C. Swanson, E.T.R.R. 39. 10¾-in. csg. 248 ft.; cg 5,815 ft.

Dr. T. M. Neal's No. 1 fee, Elisha Flack, 4,840 ft.

Strake Pet. Corp.'s No. 1 Poole, Sec. 25, G.H.&H. Sur. Drlg. sh. 9,530 ft.

S. W. TEXAS WILDCATS

Aransas County

Continental Oil Co.'s No. 1 St. Charles Co., R. D. Blassman Sur. 18⅝-in. csg. 290 ft.; T.D. 9,335 ft.; well blew out; caught fire; fire out; well still blowing; hole bridged.

Continental Oil Co.'s No. 2 St. Charles Co., R. D. Blassman Sur.; (relief well to blow out). R.U.

Atascosa County

John Durst's No. 1 Wright, Edw. Morris Sur. Drlg. 986 ft.

Red Bank Oil Co. et al's No. 1 J. P. Pratt Francisco de la Garza Sur. 46; 7-in. csg. 2,347 ft.; set 5½-in. lnr. 3,-074 ft.; S.D. 3,070 ft.

Bastrop County

C. R. Franklin's No. 1 Oscar McDonald, Martha Baker Sur. T.D. 1,853 ft.; fsg.

Bee County

Bunte Bros., Inc.'s No. 1 J. T. Earnest, Bee Co. Sch. Ld. Sur. 7-in. csg. 5,973 ft.; drlg. sh. 8,806 ft.

Mills Bennett Prod. Co. and Anderson-Prichard Oil Co.'s No. 2 Robinson, J. M. Uranga Sur. (Wlx. test. West Tuleta field). 13⅜-in. csg. 2,537 ft.; 9⅝-in. csg. 7,804 ft.; T.D. 8,122 ft.; make D. S.T.

Sultex Oil Co.'s No. 1 Wood, Jas. McGeehan Sur. Drlg. sh. 2,427 ft.

Union Prod. Co.'s No. 56 Ray T. Hanson Sur.; (Pettus field). Wlx. test; 10¾-in. csg. 4,856 ft.; cg. shly. sd. 7,604 ft.

Bell County

J. J. Cormas' No. 1 Jeff Ellis, Elizabeth Berry Sur. Drlg. L. 410 ft.

Bexar County

Edwin Eckert et al's No. 1 Ed L. Gembler, Wm. Small Sur. T.D. 800 ft.; abd.

Joe Noake's No. 1 San Antonio Sub. Irrg. Farm, W. Miller Sur. 180. S.D. 473 ft.

Philtop O. & G. Co.'s No. 2-A Patton, Fernando Rodriguez Sur. T.D. 1,946 ft.

L. L. Skaggs' No. 2 Braubach, F. Rodriguez Sur. T.D. 75 ft.; abd.

J. A. Tarver's No. 1 Florence Lam, Manuel de Luna Sur. 3. 6⅝-in. csg. 1,205 ft.; T.D. 1,692 ft.; cd. bkn. sh. 1,638-92 ft.; S.S.O.; bailed est. 10 bbl. oil P.D. before sanding up; S.D.

J. A. Tarver et al's No. 1 Joseph Leonard, Manuel de Luna Sur. 3. Drlg. sh. 1,250 ft.

Blanco County

E. L. Nixon's No. 3 Crist, John McClenechen Sur. 94. S.D. 1,330 ft.

Burleson County

H. Y. Barnett's No. 1 Giesenschlag, J. W. Hollingsworth Sur. Cg. sd.&sh. 1,-740 ft.

Caldwell County

Kean & Williamson's No. 1 E. E. Rector, J. Roberts Sur. Drlg. sh. 520 ft.

Calhoun County

Coronado Corp.'s No. 1 K. Welder, Hidalgo Sur., 3 mi. SE Seadrift. "Tight well"; reported to be tstg.; 5½-in. csg. 9,750 ft.; perf. csg. 9,500-9,600-9,700 ft.; rec. S.W.; made sqze. job at 8,580 ft.; W.O.

Ray-Ranger et al's No. 1 W. W. Wilson, V. Garcia Sur. R.U.

Cameron County

Sal Vieja Oil Co. et al's No. 1 Garcia, Santa Isabel gr. R.U.

De Witt County

Atlantic Ref. Co.'s No. 1 Pearl Conwell, Chas. Lockhart Sur. Cg. sd.&sh. 8,170 ft.

Duval County

Alaska-Tex. Oil Corp.'s No. 1 W. P. Peters, B.S.&F. Sur. 791. Cg. 3,533 ft.

G.W. Basom's No. 1 Henry Adami, J. H. Gibson Sur. 341. T.D. 1,291 ft.; abd.

J. B. Blanchard et al's No. 1 W. L. Rogers, J. Poitevent Sur. T.D. 4,415 ft.; abd.

W. L. Catlin et al's No. 1 Louis Escapule, J. Poitevent Sur. 73. R.U.

Landreth Prod. Co.'s No. 1-A C. M. Robinson, Paul Henry Sur. 116. R.U.

P. R. Rutherford's No. 1 Clara Driscoll, U. Lott Sur. 243. R.U.

Standard Oil Co. of Texas' No. 1 Rodriguez, San Pedro de Charco Redondo gr. 7-in. csg. 5,691 ft.; T.D. 6,838 ft.; tstd. gas and dist. 6,790-6,838 ft.; P.B. to retest.

Falls County

J. Shaunfield's No. 1 Barganier, J. M. Graham Sur. Bda. L.; S.S.O.; T.D. 1,-188 ft.; recmtd. csg.; W.O.; cmt. failed to hold.

Gonzales County

M. T. Huebner's No. 1 M. P. Smith, R. Plummer Sur. T.D. 1,135 ft.

Guadalupe County

Diamond Half Oil Corp.'s No. 1 W. J. Strey, Josefan de los Cortinos Sur. 49. 5½-in. csg. 753 ft.; T.D. 797 ft.; 40 ft. O.I.H.; S.D.

D. Eickenroht et al's No. 1 Wm. Oelkers, Antonio Maria Esnaurrisar Sur. R.U.

C. E. Euton et al's No. 1 Volkman est., W. J. C. Wilson Sur. 59. Drlg. sh. 897 ft.

A. J. Hollifield's No. 1 A. J. Day, Jas. Hinds Sur. T.D. 2,837 ft.; 7-in. csg. 2,-357 ft.; P.B. 2,692 ft.; swbd. sulf. wtr., S.S.O.; P.B. 2,415 ft.; acd.; retesting.

Knute Evjen et al's No. 1 W. C. Brawner, J. D. Pickens Sur. S.D. 2,394 ft. 5½-in. csg. 2,300 ft.

F. W. Nute's No. 1 M. T. Howell, Jacob Darst Sur. T.D. 2,616 ft.; run csg. to test 2,580-2,616 ft.

F. D. Spratt's No. 1 Wm. Zuchl, Claiborne Rector Sur. 38. Drlg. sh. 832 ft.

Wellington Oil Co.'s No. 1 R. L. Beaty, H.&T.C. Sur. T.D. 3,870 ft.; abd.

Hidalgo County

Gulf State Oil Co.'s No. 2 Cardinas, San Salvador del Tule gr. 16-in. csg. 157 ft. drlg. sdy. sh. 8,750 ft.

Homer P. Lee's No. 1-A Yturria Town & Imp. Co., Anastacio Villareal gr. Drlg. 780 ft.

Humble O. & R. Co.'s No. 1 T. A. Ogg, Rio Bravo subd. Cg. sh. 8,505 ft.

Jim Hogg County

Humble O. & R. Co.'s No. 3 C. T. Mestena O. & G. Co., San Antonio de Baluarte gr. Drlg. sh. 5,680 ft.

Sun Oil o.'s No. 2 East, A.B.&M. Sur. 39. Cg. sh. 3,410 ft.

Jim Wells County

Henshaw Bros. et al's No. 1 Gaither, Los

LEGAL

Department of the Interior, United States Land Office, Las Cruces, New Mexico. Notice is hereby given that a lease of the oil and gas deposits in the NE¼ SW¼, SW¼ SW¼, NW¼ SE¼, and E½ SE¼ Sec. 35, T. 17 S., R. 27 E., N.M. P.M., New Mexico, containing 200 acres, in the Empire Oil and Gas Field, is offered to the responsible qualified bidder of the highest bonus per acre pursuant to the provisions of Section 17 of the leasing act of February 25, 1920 (41 Stat. 437), as amended, at the royalty rate scale in the lease form shown in General Land Office Circular 1386, at a sale to be held in the office of the Register of the District Land Office at Las Cruces, New Mexico, at 10 o'clock A. M. on April 3, 1940. The successful bidder must deposit on the date of sale a certified check on a solvent bank, or cash, for 1/5 of the amount of the bid, and file a showing of qualifications to receive the lease required by section 7 of Circular 1386. The remaining 4/5, together with the annual rental in advance at the rate of $1 per acre, must be paid and a $5,000 corporate surety bond must be furnished prior to the issuance of the lease. The bidders are warned against violation of the provisions of section 59 of the United States Criminal Code approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior. Register, Paul A. Roach, Register.

Presnos de Arriba gr. Drlg. sh. 5,450 ft.
H. H. Howell's No. 1 G. H. Bierstedt, I. &G.N.R.R. Sur. 501. Spd.
Reese, Dunn & Taesmelis' No. 1 Perez, Manuel Barrera gr. T.D. 5,510 ft.; 5½-in. csg. 3,384 ft.
Texas Gulf Prod. Co.'s No. 1 Gallagher, Blk. 16, J. H. Gallagher subd. 10¾-in. csg. 608 ft.

Karnes County

Clyde Eckols' No. 1 J. M. Newberry, Carlos Martinez Sur. 5½-in. csg. 3,002 ft.; T.D. 3,008 ft.; perf. csg. 2,942-49 ft.; swbg.
R. W. Ford and Crown Central Pet. Corp.'s No. 1 Ed Jendrusch, Erasmo Seguin Sur. Loc.

Kendall County

C. M. Dewey's No. 2 Seidensticker, R. Davis Sur. 20, S.D. 950 ft.

Kimble County

Austin Bridge Co.'s No. 1 Wilkinson, Brooks & Burleson Sur. S.D. 195 ft.
J. C. Renfro's No. 1 D. C. Morales, Hrs. of H. Grote, Sur. 423, S.D. 20 ft.
Schwab-Cariyle & Auld's No. 1 Baker, F. C. Stisser Sur. 417, S.D. 15 ft.

Kinney County

Cooper Gas Co.'s No. 1 L. L. Farr, Geo. L. Bledsoe Sur. 835. S.D. 1,925 ft.

Kleberg County

Humble O. & R. Co.'s No. 1 O. J. Mork, Rincon de Santa Gertrudis gr. Drlg. 6,910 ft.
Skelly Oil Co.'s No. 1 State, Laguna de Los Olmos gr., Tr. 385. Drlg. 920 ft.

Lee County

Fred Pederson et al's No. 1 Brown, David Hudson Sur. T. Glen Rose L. 6,600 ft.; drlg. L. 7,640 ft.

Live Oak County

Hagan & Stewart Drlg. Co.'s No. 2 Reagan, M. Hely Sur. 5. Drlg. sh. 425 ft.
Humphries & Hotchkin's No. 1 South Texas Natl. Bnk., E. M. Adams Sur. T.D. 2,161 ft.
E. M. Jones' No. 1 West, Lot 400, Blk. of West subd. Cg. 7,465 ft.
Pocono Dev. Co.'s No. 1 San Antonio Joint Stock Ld. Bnk., Richard Everett Sur. 1, Loc.
W. R. Quinn, et al's No. 1 Stoize, J. F. Hulzar Sur. 31. S.D. 25 ft.
L. W. Stieren's No. 3 Lange, Thos. Adams Sur. T.D. 1,497 ft.

McMullen County

Gorman & Yoakum's No. 1 Nueces Ld. & Livestock, L.&G.N. Sur. 1, Loc.
F. H. Gohlke's No. 3 Miles, Wm. Kohfler Sur. 78, S.D. 1,078 ft.
Purvis & Appell's No. 1 Nueces Ld. & Livestock Co., R. E. Halter Sur. 26. T.D. 1,006 ft.; abd.
C. D. Scarborough's No. 1 First Natl. Bk. of Rosebud, Jas. Garner Sur. S.D. 1,955 ft.
Tybro Oil Co.'s No. 1 First Natl. Bnk. of Cameron, J. M. Campbell Sur. 12. Drlg. sh. 710 ft.
Tybro Oil Co.'s No. 1 Martin, H. L. Williams Sur. 18. R.U.

Medina County

T. J. Tapp's No. 1 Bendele, F. Sauer Sur. 117. S.D. 205 ft.
York Pet. Co.'s No. 1 Kate Smith, Marie Ihnken Sur. 11. T.D. 950 ft.; 5½-in. cg. 690 ft.; swbd. small amt. oil; abd.

Milam County

Fritz Fuchs' No. 1 Unaseh, Jose Justo Liendo Sur. T. clk. 1,100 ft.; drlg. clk. 1,420 ft.

Nueces County

Houser-Warren & Ginther's No. 1 Lynn Davis, Palo Alto gr. Cg. S.W. sd. 3,-141 ft.
Humble O. & R. Co.'s No. 1 D. F. Duncan, Blk. 50, Lot 2. Drlg.
John Manley et al's No. 1 Ruegg, Geo. H. Pauls subd. of Driscoll ranch. Loc.
Wellington Oil Co. and Seaboard Oil Co.'s No. 1 Swenson, Santa Petronilla Sur. Spd.

Refugio County

Norsworthy Prod. Co.'s No. 1 Wood, John Sinnott Sur. T.D. 6,508 ft. (cor.). S.D.

San Patricio County

Fred Wood et al's No. 1 C. E. Hart, Wm. G. Burgess Sur. 5½-in. csg. 7,250 ft.; tstd. S.W. 6,910-13 ft.; perf. csg. 6,900-11 ft.; swbg.

Starr County

Hebert Aid's No. 1 Camilo Garza, J. J. Gutierrez Porc. 72. T.D. 882 ft.; abd.
Interstate Minerals, Inc.'s No. 1 Green & Manning, J. J. Garza Falcon Porc. 81. 7-in. csg. 1,155 ft.; abd. 2,665 ft., T.D.
Lynes & Robertson's No. 1 Villareal, C. C.S.D.&G.N.R.R. Sur. 241. Loc.
Sun Oil Co.'s No. 1 W. G. Lehr, C.C.S.D. R.G.N.G.R.R. Sur. Drlg. 1,012 ft.
Sun Oil Co.'s No. 1 Rodriguez, Santa Teresa gr. Cg. 6,502 ft.
Syndicate Oil Corp.'s No. 1 Sanchez, Santos Sanchez Sur. 344. Drlg. sh. 150 ft.
W. W. Zimmerman's No. 1 B. D. Wood, V. Vela Porc. 84. Drlg. sd.&sh. 1,722 ft.

Travis County

O. L. Patton's No. 1 I. P. Jones, Rueben Hornsby Sur. 17. Drlg. sh. 320 ft.
L. M. White et al's No. 1 P. C. Wells, J. Harper Sur. 42. Run 7-in. csg.; drlg. L. 1,450 ft.

Val Verde County

Joiner Oil Co. et al's No. 1 Clyde Sellers. S.D. 1,822 ft.

Victoria County

Colton & Colton's No. 1 W. C. Buckholtz, F. G. Hidalgo Sur., Lot 27, 10¾-in. csg. 710 ft.; S.D. 5,400 ft.; 5½-in. csg. 5,580 ft.
Mayo & Renwar Oil Co.'s No. 1 Bayer, Garcia Sur. T.D. 6,485 ft.; 7-in. csg. 6,333 ft.; rec. S.W. 5,688-91 ft. and 5,780-85 ft.; prep. to D.D.
Mayo, Thompson Drlg. Co.'s No. 1 Ragsdale, V. Garcia Sur. S.D. 5,375 ft.; D. S. stk.; W.O.

Webb County

O W. Kilam's No. 64 Bruni, M. H. Rodriguez Sur. 446. T.D. 1,879 ft.; 5½-in. csg. 1,830 ft.; perf. csg. 1,802-06 ft.; flwg. 5 B.O. and 35 B.S.W. per day; ⅝-in. ck.
O. W. Killam's No. 1 Puig, Albercas de Arriba gr. Drlg. sh. 1,380 ft.
Mayfair Oil Corp.'s No. 1 A. M. Bruni, M. H. Rodriguez Sur. 446, 10¾-in. csg. 20 ft.; T.D. 1,852 ft.; 5½-in. csg. 1,852 ft. flwd. S.W.; small amt. of oil; abd.
V. G. Schimmel's No. 1 Volpe, Mary H. Pennell Sur. 608, S.D. 2,325 ft.
Sinclair Prairie Oil Co.'s No. 1 Callaghan Ld. & Cattle Co., B.S.&F. Sur. 585. 13⅜-in. csg. 1,598 ft.; S.D. 4,750 ft.
Tide Water Asso. Oil Co.'s No. 7 Bruni, Blk. 7, M. Arispe gr. (deep test Bruni field). T.D. 8,959 ft.; well blew out; hole bridged; stk. D.S.; prep. to P.B. and test approx. 5,600 ft.; perf. D.P. 5,636-45 ft. and 5,621-31 ft.; tstd. dry; sqzd. off; perf. csg. 5,620-30 ft.; tstd. 4 B.O.P.D.; 2,000,000 cu. ft. gas; ¼-in. ck.; T.P. 150 lb.; 350 lb. on D.S.; well went dead.

Williamson County

H. C. Lefors' No. 1 H. J. Prismeyer, Jehu Bevil Sur. 56. S.D. 1,107 ft.

Wilson County

Henshaw Bros.' No. 1 E. W. Schneider, Don Casper Flores Sur. 10-in. csg. 99 ft.; T.D. 2,602 ft.; S.D.
W. D. Moore et al's No. 1 Lorenz, Morris May Sur. S.D. 75 ft.
E. E. Young's No. 1 O. D. McMeans, C. W. Parrott Sur. R.U.

Zapata County

J. P. Martin et al's No. 1 Serapio Vela, El Grullo gr. T.D. 3,108 ft.; sdtrkd.; T.D. 3,505 ft.; 5½-in. csg. 2,906 ft.

WEST TEXAS WILDCATS

Andrews County

Illinois Oil Co.'s No. 1 University, Sec. 14, Blk. 12, Univ Sur. Loc.
Richmond Drlg. Co. and T. F. Hunter's No. 1 University, 660 ft. N and E lines of Sec. 21, Blk. 11, University Sur Cutting stk, D.P. 5,172 ft.

Concho County

Charter O. & G. Co.'s No. 1 T. Y. Hill, SW part of Julius Frederick Sur. 1693, Abst. 198. R.U. spdr.
Floyd Dodson's No. 1 Wilson, Thomas Green Sur. 1; 3,500-ft. test. Prep. U. R. 10-in. csg. from 2,197 to 2,400 ft., T.D.

Crane County

Gulf Oil Corp.'s No. 5 M. B. McKnight, Sec. 1, Blk. 21-B, P.S.L. Sur. Drlg. 6,-215 ft.
Gulf Oil Corp.'s No. 1-K University, 330 ft. N and E lines, Sec. 2, Blk. 31, University Sur. Drlg. 651 ft.
Gulf Oil Corp.'s No. 12 Waddell, Sec. 30, Blk. 26-B, P.S.L. Sur. 12-in. 532 ft. S.O. 3,215-20 ft.; S.S.G. 3,635 ft.; 8-in. csg. cmtd. at 3,718 ft.; killing wtr. 3,-763 ft.

Crockett County

Continental Oil Co.'s No. 2 Todd, 1,980 ft. S and W lines of Sec. 20, Blk. W. X. G.C.&S.F. Sur. Skd. rig W; drlg. 3,420 ft.
Soma O. & G. Synd.'s No. 1 W. T. Noelke, NW part Sec. 30, Blk. GG, H. E.&W.T. Sur. Loc.

Ector County

Ralph R. Gill's No. 1 Parker, SE¼ Sec. 12, Blk. 45, T-2-S, T.&P. Sur.; deep Holt horizon test. Drlg. 4,000 ft.
M. A. Grisham et al's No. 1 R. B. Cowden, 600 ft. from N and E lines, Sec. 4, Blk. 45, Twp. 1n (deep test), T.&P. R.R. Sur. Drlg. 5,075 ft.
Landreth Prod. Corp.'s No. 1 T.X.L., NW cor. Sec. 3, Blk. 43, T-1-S, T.&P. Sur.; deep Holt-horizon test. Prepg. to dpn. from regular pay zone to deep level; sat. and por. 5,153-96 ft., T.D.; tstg. through tbg.
Richmond Drlg. Co. and Rhodes & Tompkins' No. 1 J. L. Johnson, NW cor. Sec. 25, Blk. 43, T-1-S, T.&P. Sur.; deep Holt horizon test. T. solid L. at 3,940 ft.; W.O.C. 7-in. csg. 3,980 ft.
Stanolind O. & G. Co.'s No. 1 W. F. Cowden, SW¼ Sec. 4, Blk. 43, Twp. 1n, T.&P. Sur.; deep-lime test. T. Yates sd. 2,790 ft.; T. Clearfork 5,142 ft.; bailed 66 gal. oil in 15 hrs.; P.B. 5,215 ft.; tstg.; pmp. 99 B.F. in 24 hrs.; 25% wtr.
Western & Southern Oil Co.'s No. 1 Smith, NW cor. Sec. 6, Blk. 42, T-1-S, T.&P. Sur.; deep Holt-horizon test. Drlg. 3,853 ft.

Gaines County

Stanolind O. & G. Co.'s No. 1 T. S. Riley, Sec. 11, Blk. H.D.&W. Sur. Shot 4,762-4,864 ft.; C.O.; bailed 1 bbl. hourly before shot; T.D. 4,864 ft.; swbd. 10 B.O. in 8 hrs.; bailed dry and bailed 10 B.W. in 9 hrs.; pmpd. 30 B.O. and 30 B.W. in 24 hrs.; tstg.

Hockley County

Denver Prod. & Ref. Co. and Helmerich & Payne, Inc.'s No. 1 Whiteface Farms, 660 ft. from S and E lines Labor 22, Lgt. 77, Reeves C.S.L. Sur. Had 72 ft. of sat.; drld. plug and found no shows; T.D. 4,796 ft.; tstd. sul. wtr.; prep. P.B. and test.

Irion County

W. S. Kelly's No. 1 Yates, Conrad Poppe Sur. 730. S.D.O. 345 ft.

Loving County

J. E. Whitesides' No. 1 fee, Sec. 24, Blk. 76, Prep. run 10-in. 1,132 ft.; S.S.O.; drlg. 2,955 ft.

Lynn County

Guthrie Lake Oil Co.'s No. 1 Mary L. Shoe, Sec. 20, Blk. 8, E.L.R.R. Sur.; 800-ft. test. Fighting cave 607 ft.

Mitchell County

Ewing & Hanes' No. 1 G. I. Grable, Sec. 195, Blk. 3, H.&G.N. Sur.; 1,800-ft. test. Drlg. 625 ft.
N. V. Hilburn's No. 1 E. T. Strain, Sec. 82, Blk. 97, H.&T.C. Sur. S.D.R. 825 ft.

Pecos County

Humble O. & R. Co.'s No. 1 Young, Sec. 33, Blk. 10, H.&G.N. Sur. Top detrital 5,185 ft.; drlg. 5,479 ft.; no top called for Ellenburger L.
B. McCandless and General Crude Oil Co.'s No. 1 Virginia W. Crockett, Sec. 5, Blk. 110, T.C.R.R. Sur. T. Ellenburger 4,401 ft.; tstg. est. 6,000,000 cu. ft. gas after acd.; rng. tbg.; T.D. 4,479 ft. est. 4,000,000 cu. ft. gas and 365 B.O. P.D.; made 531 B.O. in 5 hrs.; S.I.
Skelly Oil Co.'s No. 1 J. S. Masterson (Ordovician test), Sec. 101, Blk. 10, H. &G.N. Sur. Topped Ellenburger 44 ft. high; flwd. 32 B.O.P.H.; made 518 B. O. in 10 hrs.; S.I. 5,614 ft.
R. L. Walker's No. 1 White & Baker, Sec. 86, Blk. 194, G.C.&S.F. Sur. Drlg. 833 ft.

Reeves County

T.A.T. Oil Co.'s No. 1 U. G. Orenderff, Sec. 10, Blk. 59, P.S.L. Sur. S.D.O. 1,-901 ft.

Scurry County

Coffield & Guthrie's No. 1 Reiter, Sec. 155, Blk. 97, A.T.&T.C. Sur. Tstg. on pmp. 3,500 ft.

Stonewall County

Shell Oil Co., Inc.'s No. 1 Smith, Sec. 143, Blk. 1, H.&T.C. Sur. Drlg. 5,481 ft.
W. I. Southern's No. 2 Carlisle, Sec. 293, Blk. D, H.&T.C. Sur. T. Ellenburger 5,540 ft.; S.S.O. 6,543 ft.; drlg. ahd. 6,574 ft.

Terry County

Tide Water Asso. Oil Co.'s No. 1 Lowe, SW part Sec. 3, Blk. 37-C, P.S.L. Sur. Loc.

Tom Green County

B. C. Mann's No. 1 Joe Funk, 330 ft. N. 1,650 ft. E lines, Sec. 34, Blk. 5, H.& T.C. Sur. Rng. 7-in. csg. 964 ft.
Dan Short's No. 1 J. G. Davidson, 2,-161 ft. from SL, 2,493 ft. from NW cor. L. P. Moore Sur. S.S.O.&G. 2,660-65 ft.; S.D.O. 3,320 ft.

Ward County

Gulf Oil Corp.'s No. 5 Wristen, Sec. 13, Blk. 5, H.&T.C. Sur.; scheduled Ordovician test. Prep. D.D. 4,833 ft.; tstd. only mud at 4,832 ft.
Kenneth Slack's No. 1 Bird Hayes, Sec. 148, Blk. 34, H.&T.C. Sur. Drlg. 4,379 ft.

Yoakum County

Sloan & Zook and T. N. Sloan's No. 1 J. E. Fitzgerald, Sec. 22, Blk. D, Gibson Sur., extreme NE cor. of county, 7-in. csg. 4,812 ft.; T.D. 5,658 ft.; prep. D.D.

TEXAS PANHANDLE

Deaf Smith County

Uscan's No. 1 Farwell, Sec. 18, Blk. 3, Sur. D.&A. 5,650 ft.

Lipscomb County

Phil O'Neil's No. 1 Jacob Koch, NW SW Sec. 539, T.&T.C.R.R. Sur. S.D. 1,100 ft.

Ochiltree County

James R. Macon et al's No. 1 W. R. Norris, SW SE Sec. 212, Blk. 43, H.&T.C. Sur. T.D. 6,274 ft.; test sec. at 5,000 ft.; est. 6,000,000 cu. ft. gas on D.S.T.; tstg.; bailing 6,274 ft.; unloaded csg. at well and preparing to test increasing shows of oil and gas; S.D.W.O. 6,274 ft.

Potter County

Canadian River Gas Co.'s No. 1 City of Amarillo, in city limits just north of city. Drlg. 3,530 ft.
Lee Whitaker's No. 1 D. Pavillard, Sec. 101, Blk. 2, A.B.& M. Sur. Fish out; T.A. 915 ft.

Sherman County

I.T.I.O. Co.'s No. 1 S. C. Bryant, C NW¼ Sec. 309, Blk. T-1, T.&N.O. Sur. Drlg. 2,350 ft.

E. C. TEXAS WILDCATS

Anderson County

R. H. Williamson's No. 1 O. G. Rogers, Wm. Greenwood Sur., 6 mi. SW of Elkhart. Had gas blowout 4,380-90 ft.; under control; est. 30,000,000 cu. ft. gas.

Angelina County

Ginter Bros.' No. 7 Copes hrs., J. Morin Sur., 3 mi. E of Diboll. Cg. 2,184 ft.

Camp County

W. C. McGlothlin's No. 1 Venters, S. Wright Sur., 3 mi. SE Leesburg. R.U. to D.D. to Pett, zone; prep. set csg. to test show in Pett. L. 7,043-90 ft.; had 47 ft. of sat. and por.

Cherokee County

C. C. Lanier's No. 1 W. O. Reagan, W. T. Smith Sur., 2½ mi. E of Mixon. Drk.
R. D. Salisbury's No. 1 W. M. Shankle, J. A. Manchaca Sur., 1½ mi. NE Chilton. P.B. 1,103 ft.; S.D.; W.O.

Fannin County

C. Newburn's No. 1 A. G. Allen, M. Caldwell Sur., 7 mi. NE of Banham. Laying wtr. lines.

Freestone County

C. F. W. Young's No. 1 Ray Simmons, M. DeCantona Sur., 1½ mi. W of Simmsboro. Loc.

Gregg County

Roger Lacy's No. 1 Lacy, S. P. Ford Sur., 3 mi. SW of Longview; deep Trinity gas test. M.I.M.

Hill County

Carter-Bowland's No. 1 J. J. Atchison est., E. Carroll Sur., 5 mi. W of Hillsboro. S.D. 85 ft.

Houston County

J. C. Wynne et al's (Shell Oil Co., Inc.) No. 1 G. E. Dorsey, M. Salias Sur., 2½ mi. S of Percilla; E 102 ac. of tr.; 10,000-ft. test. D.S.T. 8,541-76 ft.; rec. mud cut with gas and oil; taking sidewall cores below 10,000 ft.; contract depth of 10,900 ft. completed; no shows of oil below Glen Rose; tstg. through perfs. 10,794-10,822 ft.

Kaufman County

W. H. McGee's No. 1 Rutland Savings Bnk., John Baker Sur., 2¼ mi. NE of Tulosa. Drlg. 1,600 ft.
T. G. Shaw, Tr.'s No. 1 Angus Wynne, B. S. Newman Sur., 8 mi. E. Kaufman. lower Trinity test. S.D. 130 ft.; (corrected report).

Limestone County

Peyton Bros.' No. 1 Harris, P. Varella Sur. P.B. to 4,495 ft.; wshg. to bttm. 4,994 ft.
J. J. Tyrell's No. 1 A. G. Easterling, J. L. Chavert Sur., 11 mi. E of Groesbeck. Drlg. 4,276 ft.

McLennan County

T. M. Smart's No. 1 J. W. Mann, C. O'Campo Sur., 4 mi. S of Waco. S.D. 1,327 ft.

Nacogdoches County

Melrose Oil Co.'s No. 2 C. N. Wilson, Hall & Mora Sur., 300 ft. SE of No. 1 Wilson abd. at 2,100 ft. in Jan. Loc.

Navarro County

C. F. Carter's No. 1 Allen Eden, M. Shire Sur., 2 mi. NE of Angus. S.D. 1,201 ft.
Guy Sitton's No. 2 R. D. Fleming, John Harris Sur., 450 ft. E of No. 1 dry hole. Bailed S.S.O. and S.D. for test at 1,625 ft.
W. H. Warren's No. 1 L. Grey, E. Powers Sur., 9 mi. SE of Kerens. S.D. 660 ft.; T.D.

Red River County

Dave Flesch's No. 1 Bailey, J. Robbins Sur., 1 mi. W of Bagwell. S.D. 3,415 ft.

Robertson County

Rhett Wilder's No. 1 Moise Cerf, J. Erwin Sur., 7 mi. S of Franklin. S.D. 40 ft.

Rusk County

Jeff Bolton's No. 1 Hall Wood, J. I. Sanches Sur., 2½ mi. NW of New Salem. Lost circ. and skd. rig to start new hole; T. Wdbne. with sat. at 4,-145 ft.; S.S.O. 4,201 ft.; S.D. to test.
A. O. Whittington's No. 1 Kangerga Bros., Ign. Castro Sur., 9½ mi. N and slightly E of Pirtle. S.D. 80 ft.

Smith County

Sun Oil Co.'s No. 1 E. B. Huddle, Wm. Dickerson Sur., 2 mi. S of discovery dist. producer in Chapel Hill area; third D.S.T. failed; may test again or may P.B. to Glen Rose L.; sat. drld. from 7,983-8,019 ft.; cg. 8,175 ft.

Trinity County

Davis & Co.'s No. 1 Texas Long Leaf Lbr. Co., A. Henry Sur., 5 mi. S of Loveland. Cg. 2,231 ft.
Gossage et al's No. 1 First Natl. Bnk., B. F. Wright Sur., S of Trinity. R.U. and S.D.

Van Zandt County

J. B. Daniels' No. 1 W. R. Odom, J. Garcia Sur., 4 mi. NE of Mabank. Drk.

EAST TEXAS

(Border Counties)

Harrison County

J. A. Hughes' No. 1 Taylor, H. McNutt Sur. Blg. 2,612 ft.; S.O.

(Continued on Page 98)

New Mississippi Wildcats; Three Tests in Spotlight

By GEORGE WEBER

JACKSON, Miss., Mar. 11.—New wildcat locations and operations in three drilling tests which have reached critical stages, highlighted Mississippi activity. Leasing, still active in the vicinity of proposed wildcat tests and geophysical prospects, held up although at greatly reduced volume. Geophysical surveying continued in Central and East Central Mississippi and Northwest Alabama, with about 60 crews in Mississippi and 8 in Alabama. Geophysical activity is spreading as far east as southern Georgia, where a party is reported moving into Clinch County in the southern part of the state, to shoot Clinch County and sectors of Brantley and Ware counties.

A 15,000-acre block known as the L. W. Dennis or Allied Pipe Line Co. block is scheduled for early drilling. The well, contracted to go 5,000 ft. or to the Tuscaloosa formation, will be drilled in the NE SW Section 18-14n-4e according to reports. Magnetometer, surface geology and gravity-meter work have been done on this prospect.

A 6,000-ft. test is reported planned for the Hinds County block of Royal Oil & Gas Co. shortly. This proposed test is on the block west of Jackson in Township 5n, Range 2w.

A new Madison County wildcat, second in 2 weeks, E. L. Foster's No. 1 Haffey, NE cor. S½ Lot 5, Section 8-10n-5e, is to drill to 5,000 ft. or the Tuscaloosa formation on a 9,000-acre block. Hill & Hill have let contract for a wildcat in the SW NE Section 5-9w-7n, Wayne County, to go 6,500 ft. on a 10,000-acre block, scheduled for spudding on March 16. This test was reported on the way several weeks ago.

In Issequena County, Tatum, Dunbar and Shaddock's No. 1 Mohanna, drilling on a seismograph high in Section 9-18n-3e, is at critical stage. Operators drilled through the chalk before it was known, but the top was tentatively placed at 4,670 ft. The Eutaw formation was also tentatively topped at 4,816 ft. Cores were taken in the Eutaw formation, showing no production possibilities. However, the topping of the chalk as high as 4,670 ft., when it was expected between 4,850 and 4,900 ft. makes the well look high, and the possibilities for finding oil lower in the Eutaw or in the Tuscaloosa formations is enhanced. At latest reports the well was drilling in sand and shale below 4,965 ft. with no shows. There is a possibility the structure is an igneous plug, although no indication has been encountered.

In Yazoo County, in wildcat territory northwest of Tinsley, Hill & Hill and others' No. 1 Kinkead Plantation is being closely watched. The Selma chalk was topped at 5,127 ft. and the hole carried to a total depth of 5,358 ft., when rig repairs caused a shutdown. After resuming, operators were unable to get back on bottom, and were sidetracking at 450 ft. trying to find old hole. This test is running 500 ft. lower in the chalk than other wells in the Tinsley field.

Also in Yazoo County Robert P. Lake's No. 1 Exum estate, in Section 13-11-2, is drilling in search of the Eutaw or Tuscaloosa formation. The Selma chalk was topped at about 4,110 ft. and although the Woodruff sand was expected at about 4,250 ft., it had not been encountered when drilling below 4,495 ft. This indicates failure in the Selma chalk, but deeper production is still possible.

Other wildcats are of interest in Copiah, Itawamba, Simpson and Warren counties. The new test in Alabama, W. L. McClanahan's No. 1 Stafford, in the Bayou La Batre area of Mobile County near the coast, is reported spudding. In Florida William G. Blanchard's No. 1 Everglades in Dade County is drilling below 1,330 ft. Georgia's active wildcat test, Georgia Resources, Inc.'s No. 1 Gillican, in Clinch County, has set surface casing.

Three completions at Tinsley brought the total of producers to 26. Production averaged 7,425 bbl. daily during the past week from 23 wells. Some wells are still producing through reduced chokes, while an increasing number are going on the pump.

Outposts of interest were the Lockhart and Whigate tests. Lockhart and others' No. 1 Brooks, east of production, is to be deepened from 5,134 ft. to 6,500 ft. Two miles southwest of production Whigate Oil Co.'s No. 1 Robertson in Section 20-10-2 was abandoned dry after showing water sand in the Woodruff zone at 4,988-5,012 ft., total depth.

A slight northwest extension was made in completing Edgar Johnson's No. 2 Brumfield for a good producer in the Woodruff sand.

MISSISSIPPI COMPLETIONS

Tinsley—Yazoo County

Edgar Johnson's No. 2 Brumfield, C SW SE Section 2-10-3, initial production 1,320 bbl., ¾-in. choke, tubing and casing pressure 225 lb., Woodruff sand 4,760-82 ft., 7-in. casing 4,759 ft., total depth 4,782 ft. Union Producing Co.'s No. 10 Stevens, C NW NW Section 12-10-3, initial production 1,200 bbl., ¼-in. choke, casing pressure 150 lb., tubing pressure 240 lb., Woodruff sand 4,769-4,804 ft., set 7-in. casing 4,843 ft., perforated 4,790-4,804 ft., total depth 4,845 ft. Union Producing Co.'s No. 13 Stevens, C SW NW Section 12-10-3, initial production 438 bbl., 9/64-in. choke, casing pressure 290 lb., tubing pressure 210 lb., Woodruff sand 4,830-60 ft., set 7-in. casing 4,916 ft., perforated 4,850-60 ft., total depth 4,916 ft.

Wildcat—Yazoo County

Whigate Oil Co.'s No. 1 Robertson, C NW NW Section 20-10-2, total depth 5,012 ft., Woodruff sand 4,988-5,012 ft. showed salt water, abandoned.

MISSISSIPPI

Clarke County

Ark.-Miss. Oil Co.'s No. 1 State, C SE SE Sec. 16-2n-16e. Drk.

Copiah County

G. C. Koch's (former Triangle Drilling Co.) No. 1 W. W. Broome, 153 ft. SW cor. SW SE Sec. 1-10n-8e. Drlg. 706 ft.

Issaquena County

W. E. Hall's No. 1 Irby Charping, approx. C NE NW Sec. 29-10n-8w, M.I. rig. Locke & Mellard's No. 1 W. Gary, 660 ft. SE cor. NW¼ Sec. 14-9n-6w. Loc.

Tatum, Dunbar & Shaddock's (Germany, Lucy & Fair) No. 1 Mohanna, E½ SW Sec. 9-18n-3e. Set 18-in. csg. 20 ft.; re-cmtd. 10¾-in. csg. 600 ft.; T. chalk (ctgs.) 4,670 ft.; drlg. Eutaw formation sd. & sh. 4,965 ft.

Itawamba County

G. C. Grasty et al's No. 1 Ky. Lbr. Co., 1,320 ft. E. 660 ft. S. C Sec. 7-10s-10e. Twisted off D.S.; skd. 24 ft. S and

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spd.; set 10¾-in. csg. 170 ft.; S.O. 1,500 ft.; T. Trenton L. 1,690 ft.; drlg. gr. L. 2,342 ft.

Madison County

E. L. Foster's No. 1 Haffey, NE cor. S½ Lot 5, Sec. 8-10n-5e. M.I. drlg.
Ralph A. Johnston's No. 1 Ray & Dinkins, C SW SW Sec. 14-10e-3w. Loc.

Prentiss County

Home Dev. Co.'s No. 1 Mrs. A. Allen, Sec. 8-7s-9e. S.D. 1,630 ft.

Sharkey County

Eureka Pet. Co.'s No. 1 W. H. Cooper, 1,980 ft. S, 660 ft. W, NE cor. Sec. 13-14n-6w. Set 10¾-in. csg. 571 ft.; T.D. 1,100 ft.; S.D.

Simpson County

Cleve Love et al's No. 1 N. E. Garner, 300 ft. N and E of C Sec. 1-10n-17w. O.W.D.D.; O.T.D. 3,145 ft.; set 10¾-in. csg. 871 ft.; drlg. Wlx. 5,010 ft.

Warren County

W. O. Allen's No. 1 J. W. Culley, 1,980 ft. NW cor. NW¼ Sec. 6-13n-3e. Set 10¾-in. csg. 983 ft.; drlg. 1,328 ft.
H. C. Cummings et al's No. 1 T. H. Morrissey, C E½ W½ NE Sec. 8-17n-2e. Spd. and S.D. 20 ft.; prep. resume drlg.

Yazoo County

Harry Hanbury et al's No. 1 Brooks, SW¼ Sec. 17-10-2. Loc.
Hill & Hill et al's No. 1 Kinkead Plantation, 1,796 ft. SE cor. NE¼ Sec. 31-11-3. 7⅝-in. csg. 128 ft.; T.D. 5,358 ft.; S.D. for repairs and couldn't get back in old hole; sdtrkd. at 450 ft.; T. Selma chk. 5,127 ft.
Hassle Hunt's No. 1 A. G. Johnson, C NE NE Sec. 14-10-3. Missed Woodruff sd.; Eutaw (Stevens sd.) 4,775-4,805 ft. and 4,863-82 ft.; D.S.T. 4,815-90 ft. tstd. S.W.; D.S.T. 4,775-4,805 ft. failed; rng. 7-in. csg. 4,890 ft.
Hassle Hunt's No. 2 A. G. Johnson, C SE NE Sec. 14-10-3. Set 16-in. csg. 80 ft.; drlg. bl. sh. 3,719 ft.
Edgar Johnson's No. 1-B Brumfield, C NW SW Sec. 1-10-3. Spdd.
Jones & O'Brien Bros.' No. 1-C Stevens, C SE NE Sec. 11-10-3. Drld. fault.; T. chalk 4,493 ft.; no Woodruff sd.; T.D. 4,690 ft.; P.B. 2,800 ft.; prep. sdtrk.
Kingwood Oil Co.'s No. 1 R. E. Wilburn, 330 ft. NE cor. Sec. 31-12n-3e. Spdg.
Robt. P. Lake's No. 1 Exum Est., C SW NE Sec. 13-11-2. No chalk shows; drlg. 4,490 ft.
J. R. Lockhart et al's No. 1 Frank Brooks, W½ SE NW Sec. 17-10-2w. T. chalk 4,964 ft.; T. sd. 5,047 ft.; cd. 5,051-55 ft.; cores rec. 5,047-51 and 5,110-25 ft.; showed salty taste; T.D. 5,134 ft.; (cor.); S.D.; resumed drlg. to dpn. to 6,500 ft.
Nelson Bros.' No. 1 S. S. Stoner, C SE NW Sec. 2-11-5w. M.I.M.
Slick-Urschel Oil Co.'s No. 1 Slick, 2,075 ft. S, 670 ft. W, NE cor. NW¼ Sec. 11-10-3. Drlg. bl. sh. 4,382 ft.
Union Producing Co.'s No. 1 Geo. Herron, C NE SW Sec. 11-10-3. Drlg. sh. & lignite 3,010 ft.
Union Prod. Co.'s No. 4 Perry, C SW NE Sec. 24-10-3. Set 16-in. csg. 50 ft.; Stevens sd. 4,886-4,906 ft.; D.S.T. failed; cg. bl. sh. 4,960 ft.
Union Prod. Co.'s No. 1 Stevens, C NW NW Sec. 13-10-3. O.W.W.O.; O.T.D. 6,112 ft.; P.B. 4,973 ft.; set 1st retainer 1,820 ft.; perf. 4,808-10 ft.; 2nd retainer 4,898 ft.; recomp. 750 B.P.D.; 50% S.W.; ¼-in. ck.; went dead; S.D.; W.O. S.R.
Union Prod. Co.'s No. 6 Stevens, C SW NE Sec. 12-10-3. R.U.
Union Prod. Co.'s No. 8 Stevens, C NW NE Sec. 12-10-3. Set 16-in. csg. 42 ft.; W.O.C.
Union Prod. Co.'s No. 6 Woodruff, C SW NW Sec. 13-10-3. Set 16-in. csg. 67 ft., 10¾-in. csg. 1,213 ft.; Woodruff sd. 4,497-4,502 ft.; D.S.T. 4,492-4,532 ft.; rec. 880 ft. oil in 10 min.; drlg. Stevens sd. 4,859-72 ft.; tstd. S.W.; T.D. 4,931 ft.; P.B. 4,550 ft.; set 5½-in. csg. 4,548 ft.; perf. 4,493-4,506 ft.; ran tbg.; swbg. perf. 4,493-4,506 ft.; swbd. 8 hrs. and rec. 98 bbl. oil; would not kick off; S.D.; W.O. pmp. unit.

ALABAMA

Mobile County

W. L. McClanahan's No. 1 J. A. Stafford, 300 ft. N, 150 ft. W SE cor. NW SW Sec. 24-7s-3w. Spdd.

FLORIDA

Dade County

Wm. G. Blanchard et al's No. 1 Everglades, 200 ft. E, 100 ft. N, SE cor. Sec. 31-53s-35e. Set 16-in. csg. 140 ft.; drlg. L.&sh. 1,328 ft.

GEORGIA

Clinch County

Georgia Resources, Inc.'s No. 1 Gillican, C Land Lot 200, 12th Land Dist. Set 10-in. csg. 736 ft.

Texas Wildcats

(Continued from Page 96)

Marion County—Other

B. I. Daniels' No. 1 T. O. Livingston, G. Coore Sur. T.D. 2,330 ft.; W.O. csg.
M. D. Fitzwater's No. 1 C. Moseley, 330 ft. SE cor. 100-ac. tr., W. H. Burton Sur. T.D. 1,529 ft.; dropped in cavity at 1,519 ft.; W.O.
L. Lindsey's No. 1 Hart, G. Coore Sur. Set 5½-in. csg. 2,264 ft.; W.O.C.
Sanders & Wyckliffe's No. 1 W. P. Stiles, M. Noll Sur. Set 6-in. csg. 2,218 ft.; T.D. 2,408 ft.; H.F.O.; W.O.S.R.

Marion County—Rodessa

Holcomb & Thomason's No. 1-A Madine, 400 ft. WL, 467 ft. NL, 33.6-ac. tr., A. D. S. Coy Sur. Set 9⅝-in. csg. 1,840 ft.; drlg. anhy.&sh. 5,900 ft.

Shelby County

Earl McDaniels et al's No. 1 J. S. Swann, 250 ft. NE cor. 100-ac. tr., Ann Gray Sur. Pits.
Superior Oil Co.'s No. 1 Pickering Lbr. Co., 990 ft. E, 330 ft. N, SW cor. Lot 4, W. J. Crane Sur. T. Midway 1,555 ft.; T. Cane River 1,850 ft.; T. Annona 1,955 ft.; T.D. 2,658 ft.; P.B. 2,625 ft.; tstd. 5% oil and 95% mud and S.W.; recmtd. 2,615 ft.; 7-in. csg. set 2,595 ft.; oil sd. 2,618-21 ft.

NORTH TEXAS WILDCATS

Archer County

Guy J. Brown et al's No. 1 Walter Ford, 467 ft. from S and W lines, Robt. Neil Sur., Abst. 331, 2 mi. E of Holliday. Drlg. 600 ft.
C. B. Christie & Phillips' No. 1 H. H. Taylor, 330 ft. from S and 3,358 ft. from W lines of Harvey Cox Sur., Abst. 67. L. 5,280 ft.; S.D.
Clark-Cox's (Deep Rock Oil Co.) No. 1 J. M. McCarty, NW cor. C. C. Brown, Abst. 20. Drlg. 2,550 ft.
Continental Oil Co.'s No. 1 L. F. Wilson, NE cor. SW¼ Sec. 20, H.&T.C. Sur. (1½ mi. E of Hull-Silk). 6⅝-in. 5,138 ft.; T.D. 5,250 ft.; W.O.C.
Fish et al's No. 1 A. B. Claggett, 150 ft. from W and 850 ft. from N lines of 200-ac. tract in Rachel Story Sur., Abst. 373. Loc.
Geo. B. Golden's No. 1 J. C. King, NE cor. Sec. 2422, T.E.&L. Sur. Loc.
N. D. Goldsmith's No. 1 A. P. Neal, 1,750 ft. from S and 150 ft. from W lines, Sec. 10, D. White Sur., Abst. 673. Loc.
Hedrick Oil Co.'s No. 1 L. W. McCrory, SW cor. Lot 2, Blk. 94, A.T.N.C.L. Sur., 2½ mi. SE of Mankins pool. Drlg. 2,611 ft.
Bert Ligon's No. 1-D White, NE cor. Lot 1, Blk. 40, A.T.N.C.L. Sur. (1½ mi. E of Hull-Silk field). Bos. 4,360-92 ft.; 6⅝-in. 4,369 ft.; tstg. est. 300 bbl.
Roeser & Pendleton's No. 1 J. R. Parkey, Sec. 11, Blk. 3, H.&T.C. Sur. (north outpost to Mankins deep pool). Drlg. 3,880 ft.
E. F. Scott's No. 1 York, SE cor. SW¼ Sec. 1861, T.E.&L. Sur. Spd. & S.D.
C. W. Snoddy's No. 1 G. & W. Webb, NW cor. Sec. 1897, T.E.&L. Sur. Drlg. 590 ft.
Waldo E. Stephens et al's No. 1 Hattie, B. Adae, SE part of Blk. 7, Palo Pinto Co. Sch. Lds., 3 mi. SE of Griffin pool. T.D. 5,100 ft.; S.D.O.

Baylor County

Hattie B. Madden's No. 1 J. J. James, 2,000-ft. test located 1,650 ft. from N and 150 ft. from E lines of Sec. 150, T.&N.O.R.T. Sur. S.D. 1,060 ft.

Clay County

L. T. Burns' No. 1 E. Henderson, SW cor. SE¼ Sec. 2615, T.E.&L. Sur. Loc.
L. T. Burns' No. 1 J. G. Mullins, 330 ft. from N and E lines of N 160 ac. of Sec. 2617, T.E.&L. Sur. Drlg. 3,510 ft.
Mid-Union Drilling Co. et al's No. 1 S. E. Oliver, SE cor. Sec. 2646, T.E.&L. Sur. (4,100-ft. test). Bldg. road; loc.
Shell Oil Co., Inc.'s No. 1 Davis, Sec. 93, J. H. Belcher Sur. O.W.D.D.; C.O. 5,136 ft.

Cooke County

Cranfill & Staley's No. 1 S. H. Peery, SW B.B.B.&C. Sur., Abst. 145. S.D. 2,505 ft.
G. V. Minnish's No. 1 Stout & Brewer, S½ of Brewer tract, J. Rodrigues Sur., Abst. 880. Loc.
Mudge Oil Co.'s No. 1 Bonner, 330 ft. from S and E lines of E 30 ac. of W 61 ac. of S 101 ac., A. Emanuel Sur., Abst. 1196. Drlg. 1,565 ft.
Mudge Oil Co.'s No. 1 Sam Seagrave, 330 ft. from SW cor. of 193-ac. lease, O. M. Gray Sur., Abst. 415. Spud and S.D.
C. E. Sykes' No. 1 H. Christian, 1,000 ft. from W and SW lines, J. P. Bailey Sur., Abst. 70. Drlg. 3,165 ft.

Cottle County

J. E. Burns et al's No. 1 J. E. Moss, Sec. 5, Blk. L, A. Forsythe Sur. Jnkd. 225 ft.; skd. 20 ft. S; S.D. 1,823 ft.

Denton County

Jones Drlg. Co.'s No. 1 H. Chapman, L. Moore Sur., Abst. 824. Tstg. 1,410 ft.; cg. 1,600 ft.

Foard County

Domain Oil Co.'s No. 1 Wilson, Marshall Univ. Sur. Drk.
Ohio Oil Co.'s No. 1 M. E. Rasberry, NE cor. Sec. 26, S.P. Sur., 5,000-ft. test. R.U.R.

Hardeman County

Carter & Taylor's No. 1 Norton, NW cor. 91-ac. tr. in Blk. 3, Robt. Young Sur., 16 mi. N of Quanah. Drlg. 995 ft.
Norris & Gilbert's No. 1 Robert Weekley, SW SE Sec. 87, Blk. 16, H.&T.C. Sur. Drlg. 1,170 ft.

Jack County

W. L. Forbes et al's No. 1 N. W. Davis, B.B.&C. Sur. Drlg. 2,438 ft.
Harper Pet. Co.'s No. 1 J. W. Kinder, SW¼ Sec. 2667, T.E.&L. Sur., Abst. 762. T.D. 2,160 ft.; S.D.
H. R. Smith's No. 1 I. G. Yates, SW cor. John Holderman Sur., 6 mi. NW Jacksboro. Spd. and S.D.

Montague County

W. H. Gant and Continental's No. 1 J. L. Brown, Sec. 58, E.T.R.R. Sur. 6⅝-in. 6,843 ft.; brkn. sdy. L. S.O. 6,843 ft.; treat. 8,000 gal. acd.; tst. showed O.& G. 7,036-56 ft.; T.D. 7,333 ft.; rng. 5½-in. liner, 6,843-7,333 ft.; fsg. swb. and 5,800-ft. line; set retainer 6,500 ft.; perf. 52 shots 6,000-6,400 ft.; shot 10 qt. 6,470-80 ft.; no results; shot 20 qt. 6,300-10 ft., 1,000 ft. mud, no oil; S.D.O.
Gibson & Jenning's No. 1 Holt, NW cor. Blk. 36, Kaufman C.S.L. Sur. Loc.
W. K. Jones' No. 1 E. E. Johnson, Sec. 5, Abst. 230, E.T. Sur. (5,500-ft. test). Core S.S.O. 3,759-73 ft.; test mud on D.S.T. 4,920 ft.; S.D.
W. B. Omohundro's No. 1 Seay, Sec. 32, Blk. 4, H.&T.C. Sur. (5,500-ft. test). Cong. 5,696-5,705 ft.; L. & cong. S.O. 5,686-5,706 ft.; rny. 6⅝-in.; filled up and flwd. oil on 30-min. D.S.T.; last min. pure oil.
Wm. J. Payne's No. 1 T. M. Baker, NW¼ Lot 43, W. J. Wells Sur., Abst. 844, 5,000-ft. test. Loc.
Stanolind O. & G. Co.'s No. 1 McCool, NW cor. Jacob Lenow Sur. (½-mi. W outpost to Rogers field). 6⅝-in. 5,233 ft.; W.O.C.; D.S.T. 5,236-56 ft.; flwd. oil at end of first 6 min.

Wichita County

E. C. Harlin, Jr., et al's No. 1 I. H. Kemner, SE cor. Blk. 28, Lge. 1, Denton Co. Sch. Lds. (5,200-ft. test). Drlg. 3,012 ft.

Wilbarger County

Amerada Pet. Corp.'s No. 1 B. Goodpasture, Sec. 35, H.&T.C. Sur., Blk. 15, 8,000-ft. test. Loc.

Young County

F. T. Conner's No. 1 Wright McClatchey est., SW cor. Sec. 284, T.E.&L. Sur. Drlg. 1,700 ft.
Cosden Pet. Corp.'s No. 1 W. E. Steele est., NE part of R. M. Burton Sur., Abst. 8, 7 mi. SE Graham. 4,200-ft. test; tight hole; 6⅝-in. 3,734 ft.; tstg. 3,835-85 ft.; est. 10,000,000 cu. ft. gas; tstg. 3,894 ft.
H. W. Dyer's No. 1 M. G. Cheney, M. L. Terry Sur., Abst. 1261. S.D. 700 ft.
K. R. March's No. 1 Ed Burton, NE cor. Blk. 99, J. A. True Sur., Abst. 1640, 4 mi. SE Graham, 4,250-ft. test. Rng. 6⅝-in. to 3,804 ft.
A. T. Strong et al's No. 1 E. C. Stovall, Sec. 2946, T.E.&L. Sur. (4,800-ft. test). Drlg. 4,730 ft.
James Toughy et al's No. 1-C Akers, W. McClure Sur., Abst. 183, S.S.G. 3,994-4,005 ft.; S.O. 4,005-20 ft.; est. 4,000,000 cu. ft. gas; tstg.

WEST CENTRAL TEXAS DISTRICT

Brown County

A. M. Stalcup's No. 1 J. C. Morris, 900 ft. S, 700 ft. E lines of Morris tr. in John Goodwin and W. B. Hester Surveys. S.D.R. 802 ft.

Callahan County

D Fox and E. L. Dunn's No. 1 A. and G. Berry, NE pt. Sec. 78, B.O.A. Sur., 950-ft. test. Drlg. 752 ft.
N. D. Gallagher's No. 1 E. Grisson, SE pt. Sec. 2, Blk. 8, S.P. Sur. Spd. & S.D.
Green & Owens' No. 1 Murray, 156 ft. from N and 1,725 ft. from E lines of Jacob Track Sur. 761. S.D. 867 ft.; funds.
J. C. Hunter and H. L. Graham's No. 1 R. B. Leggett, Sec. 7, Blk. 8, S.P. Sur. Drlg. 1,820 ft.
W. Lee's No. 1 H. W. Ross, 2,420 ft. W, 1,540 ft. S lines, Sec. 98, B.B.B.&C. Sur, R.U. mch.
J. L. Reeves' No. 1 N. A. Estes, SW¼ Sec. 4, Blk. 8, S.P. Sur., 2½ mi. S of Bowles pool. M.I.M.
Reeves' No. 1 Alexander, NE pt. of Sec. 12, E.T.R.R. Sur. C.O. 1,060 ft.; fsg. job completed.
A. L. Thomas' No. 1 Abram, NW pt. Sec. 1, B.B.B.&C. Sur. M.I.M.

Coleman County

Anzac Oil Corp.'s No. 1 McCord, 2,200 ft. E, 2,196 ft. S of B.B.B.&C. Sur. R.U. mch.
J. C. Ort's No. 1 Ernst Walker, SE cor. Hicks Sur. W.O.C. 700 ft.
Robertson & Bradford's No. 1 Morris, 330 ft. N, 1,582 ft. W lines, Blk. 2, G.H.&H. Sur. Spdg.

Comanche County

J. M. Russell's No. 1 P. Scott, SE SW Sec. 25, Blk. 2, H.&T.C. Sur. Loc.

Eastland County

Bradford & Robinson's No. 1 J. P. Morris, 330 ft. N and W lines of E½ W½ Sec. 176, G.H.&H. Sur. Loc.
Butler & Horne and E. J. Keoughan's No. 1 L. Waters, Sec. 83, Blk. 3, H.& T.C. Sur. S.D.O. 3,355 ft.
States Oil Corp.'s No. 1 V. N. Owens, NE Sec. 23, Blk. 2, T.&N.C. Sur. Loc.

Many Sciences Called Into Use in Oil Exploration

(Continued from Page 23)

even though the theories themselves may not be in the realm of practical application. From our atomic theories came a theory that elements were composed of atoms of various weights but with all other properties similar. These are known as isotopes. In order to determine the presence of isotopes of gaseous elements, the mass spectrograph was refined so that it could measure minute quantities of gas in the presence of other gases simply by determining atomic weights. We can take this instrument and measure concentrations of other gases. For example, we know the molecular weights of the hydrocarbons. We know that small quantities of ethane, propane and butane in natural gas indicate the nearby existence of oil. The mass spectrograph will indicate the presence of these higher hydrocarbons and it immediately steps into a field that is probably far remote from the aims of those who developed it.

The importance of the application of the mass spectrograph and of the theory of radioactivity to prospecting thus demonstrates the increasing tendency of the oil industry to branch out into all fields of science in its search for aids.

One of the most interesting facts about this growth is that a great part of it has been accomplished by service organizations. Recently eight petroleum chemists have been honored because they "ventured into the unknown fields of science and engineering and created new goods, new services and new employment opportunities." Five of these men were members of the staff of Universal Oil Products Co., which does not produce nor refine a barrel of its own crude. The Dow Chemical Co. has made noteworthy contributions to the completion of oil wells without having any production of its own. The latest developments in prospecting come from geophysical companies. Catalytic cracking has developed largely outside of the industry itself.

Whether or not this tendency is beneficial is open to argument, but it stands to reason that the oil industry has available more facts on which to work than any service company can have. These facts are, however, largely ignored and have to be rediscovered the hard way by the service companies.

The Oil and Gas Journal plans to present a

series of articles dealing with the development of our exploration and production techniques. In these articles an attempt will be made to show the basis of science on which they rest and also to cover the border-line fields between geology and the other sciences so as to present further possibilities for progress.

The fundamentals of exploration, development and production are geological. The rocks through which we drill and the oil which we often find are geological bodies. In our exploitation of these geological bodies we require the services of chemists, physicists and engineers as well as geologists, but when these associated scientists leave the laboratory and go into the field, they require the services of the geologist as guide. Many processes work perfectly in the laboratory and not at all in the field. The geologist, knowing more about the field than the others, can often suggest lines of development which can be followed advantageously by the others.

Our fundamental problems deal with the nature and location of geological bodies—mainly porous rocks saturated with oil. We cannot see these oil pools, but we can obtain evidence as to their location. Geologists have been highly successful in learning how to find these geological bodies but recently they have called on other scientists to help them answer two other questions, namely, what do various geological bodies give out or permit to pass through them and what do they block, reflect or absorb? Geophysics presents many facts dealing with these problems and applied geophysics added to applied geology has enabled us to say that after 80 years of production, we have confounded the pessimists who kept warning us that our reserves would soon be depleted and have today a greater supply of proven reserves than at any time in the history of the industry. We are also confident that we shall continue to find new reserves for many years—provided we can take the time to develop the necessary technique. Every year the task becomes more difficult and every year we need more expert technical help.

Search for Petroleum Continues in Georgia

(Continued from Page 26)

This means, of course, that major unconformities exist between the formations. Furthermore, the overlaps provide a blanketing effect on the older formations, thus making structural mapping on the surface very difficult. It is distinctly possible that local folding on a minor scale, but sufficient to provide oil and gas traps, has taken place several times in the history of the Coastal Plain rocks. The subsequent deposition of a bed like the Hawthorn could completely conceal such structures from a surface observer. Prettyman and Cave have prepared a subsurface structural map on the fullers earth bed occurring at the base of the Hawthorn.[3] This map is believed to show Miocene and post-Miocene movements, but does not necessarily faithfully portray pre-Miocene structural conditions, if any, because, as stated above, the Hawthorn is an overlapping formation. Similar conditions might exist in regard to the older formations of the Upper Cretaceous.

Investigations of subsurface structural conditions in the Coastal Plain have, of necessity, been so generalized that the presence of local details may have been easily overlooked. The great majority of wells in the area have been drilled for water, and, in many cases, no samples were retained for study purposes. Therefore, correlation has been forced to depend almost entirely on somewhat unsubstantial drillers' logs. The Georgia Division of Mines, Mining and Geology has, for the past 3 years, endeavored to get greater cooperation from the drillers in saving samples and has made considerable progress along this line.

The subsurface structural evidence assembled by Prettyman and Cave indicates very clearly a gentle, southeastward regional dip. The state geologic map further corroborates this dip, since it indicates the oldest formations to the northwest, around Columbus, and the youngest deposits in the southeast, along the Atlantic coast.

It appears, then, that the only logical procedure in prospecting for oil in Georgia is not only to employ the latest and most accurate geophysical methods, but also to do considerable test coring for information. A casual examination and comparison of the Georgia Coastal Plain stratigraphic section with those of the oil-producing states farther to the west, reveals that there is considerable similarity between them. This fact should be encouraging to the prospector, together with the knowledge that definite traces of oil and gas have been noted in several recently drilled wells.

The Basement Rocks

It has long been the supposition of most geologists that the Coastal Plain sediments rested directly upon a basement complex of old metamorphic and igneous rocks. It was believed that these basement rocks were merely a continuation, to the south, of the crystalline rocks of the Piedmont section lying north of the Fall Line. These rocks, classified as pre-Cambrian, were thought to have been worn down, over a vast period of time, to a peneplain extending many miles east of the present shore line.

The presence of a peneplain has been well established, but its age has been a matter of dispute, since exact age determinations of crystalline rocks are very difficult. The only criterion, until recent-

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ly, which could be used to date the peneplain was the fact that it lies beneath the oldest Cretaceous and is, therefore, pre-Cretaceous. In 1939, however, additional evidence of great importance was discovered in the Hilliard Turpentine Co. No. 1 well of the St. Mary's River Oil Corp., located in northern Nassau County, Florida.

Robert B. Campbell,[4] president of the Peninsular Oil & Refining Co., reported that this well encountered Mississippian black shale at a depth of 4,635 ft. Therefore, the presence of a hitherto unsuspected sequence of Paleozoic rocks below the Cretaceous sediments, gives rise to important speculations regarding the so-called "basement" peneplain. It indicates that the peneplain is definitely post-Paleozoic; and it further indicates that some sort of troughs were created in the old crystalline rocks in which Paleozoic sediments could be deposited and preserved.

Another supposition of far-reaching significance, could be made in the prediction of the discovery of other localities in which Paleozoic sediments will be found below the Coastal Plain sediments of South Georgia.

This should be of the greatest interest to oil prospectors for it opens up a whole new vista, and greatly increases the potentialities for the discovery of commercial petroleum deposits.

1938 and 1939 Investigations

The search for petroleum in Georgia was given a great boost in the spring of 1938, when the Pan American Oil Co. spudded in its test in Pierce County on April 2. The location was made as the result of a magnetometer and seismograph investigation by the Independent Exploration Co., and was drilled to check structure. The second well in Pierce County, drilled in May 1939, by Donald Clark and others, was located 2 miles north of the first one, and it, also, was primarily drilled to check subsurface structure. Both wells were dry holes. The first ended in pink granite at 4,375 ft., and the last one stopped at 4,355 ft. in the same granite. Adjustment to sea level puts the top of the granite in both wells at approximately the same level.

During 1939, two wells were drilled at Uvalda, Ga., in southern Montgomery County, by the Meadows Development Co. The first bottomed at 1,619 ft., while the second is reported to have been drilled to a depth of about 2,100 ft. Neither well went to the base of the Coastal Plain sediments. Both wells had a slight showing of gas at about 1,100 ft.

Another test well was started in the latter part of 1939 in Clinch County, about 17 miles south of Homerville, Ga. This well, now at an approximate depth of 700 ft., encountered a slight show of oil and gas at about 400 ft., near the base of the Hawthorn. It is being drilled by the Georgia Resources Co. and is known as the No. 1 Gillican.

The Georgia Division of Mines, Mining and Geology has received, or made logs of all these wells. Complete samples have been filed with the division, and they are available for study purposes at Room 425 State Capitol, Atlanta, Ga. The logs will be published sometime later this year, together with a map showing the locations of all oil test wells and water wells drilled in the Coastal Plain.

Well Logs

Several of the deeper logs, greatly abbreviated, are given below:

PAN AMERICAN PRODUCTION CO.'S NO. 1 ADAMS-McCASKILL

LL. 329, fourth district, Pierce County, Georgia. Elevation, 77 ft. Spudded, April 2, 1938. Completed, May 13, 1938. Paleontology by Winnie McGlamery, paleontologist, Alabama Geological Survey.

	(Feet)
Miocene	120 - 450
Oligocene	450 - 690
Jackson	690 -1,895*
Claiborne	1,895 -2,075
Wilcox	2,075 -2,317
Midway	2,317 -2,690
Post-Tuscaloosa	2,690 -3,995
Tuscaloosa	3,995 -4,340
Granite	4,355 -4,375†

Note: The post-Tuscaloosa includes the Eutaw, Selma (?), and Ripley.

*Approximately. †Total depth.

MEADOWS DEVELOPMENT CO.'S NO. 2 MOSES

Near Uvalda High School, Montgomery County. Elevation 199± ft. Paleontology by M. N. Broughton (0-665+ ft.); D. W. Gravell (1,050-1,619 ft.). Composite log prepared from several wells in vicinity.

	(Feet)
Miocene	0 - 350(?)
Oligocene	350(?)- 665
Jackson	665 -1,050±
Claiborne	1,050± -1,539±
Wilcox	1,539± -1,619*

*Total depth.

CITY OF MEIGS, GA., THOMAS COUNTY

Water well near railroad station. Spudded, December 1937. Completed, July 1938. Elevation, 347 ft. Paleontology by E. R. Applin.

	(Feet)
Miocene	0 - 484±
Oligocene	484 - 641(?)
Jackson	614(?)- 815
Pre-Jackson and post-Cretaceous	815 -1,530

SAVANNAH OIL & GAS CO., CHEROKEE HILL WELL

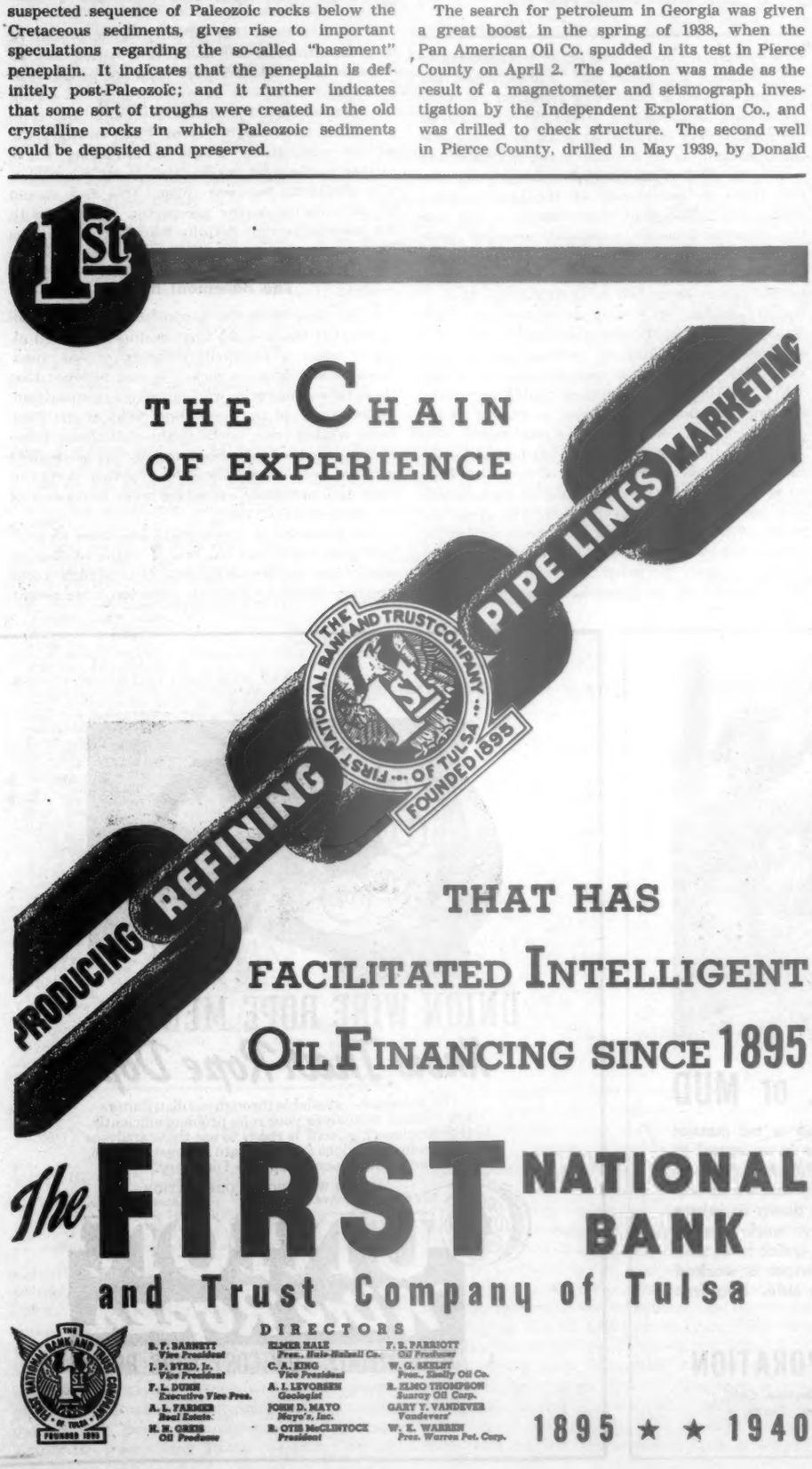
Chatham County, 7 miles north of Savannah. Elevation, 50 ft. Paleontology by D. W. Gravell (620-2,110 ft.)

	(Feet)
Pleistocene	0 - 50±
Miocene	50 - 250(?)
Oligocene and Jackson	250 - 610
Claiborne and Wilcox	610 -1,400
Midway	1,400 -1,680
Cretaceous	1,680 -2,130*

*Total depth.

References

1. LaForge, L.; Cooke, C. W.; and others, Physical Geography of Georgia; Ga. Geol. Survey Bulletin 42, 1925.
2. Prettyman, T.M., and Cave, H. S., Petroleum and Natural Gas Possibilities in Georgia; Ga. Geol. Sur. Bull. 40, pp. 57-58, 1923.
3. Cooke, C. W., and others, Physical Geography of Georgia; Ga. Geol. Sur. Bull. 42, pp. 19-44, 1925.
4. Cooke, C. W., and Munyan, Arthur C., Stratigraphy of the Coastal Plain of Georgia; Amer. Assoc. Pet. Geol. Bull., Vol. 22, No. 7, pp. 789-793, 1938.
5. Prettyman, T. M., and Cave, H. S., op. cit., p. 134.
6. Paleozoic in Florida? Amer. Assoc. Pet Geol. Bull., Vol. 23, No. 11, pp. 1712-1720, 1939.



Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1940 High	1940 Low	Week ended Mar. 9 High	Week ended Mar. 9 Low	Week ended Mar. 9 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1939	Com. sh. earn. 1938	Com. sh. earn. 1937	1939 High	1939 Low	1938 High	1938 Low
56½	53¼	55	53¾	54	Amerada Corp.	788,675	N.P.	50cQ	1-31-40	$2.00	$2.07	$3.04	74½	50	78	55
23⅝	20½	23	22½	23	Atlantic Refining	2,663,999	$25	25cQ	3-15-40	1.00	1.40	3.51	24¾	18⅛	27⅝	17¾
15¾	13¾	15⅝	14⅜	15⅝	Barber Asphalt Co.	390,223	$10	25c	2-20-40	.25	—.85	1.91	21	10¼	23¾	12⅛
13⅜	10¾	11¼	10⅞	11	Barnsdall Oil Co.	2,250,344	$5	15c	3-9-40	.90	1.26	.85	19½	11⅛	21⅜	10⅛
8	7	7⅜	7⅛	7⅜	Consolidated Oil Corp.	13,751,846	N.P.	20cQ	2-15-40	.80	.55	1.48	9⅞	6⅛	10¾	7
25	22½	23¾	22½	22½	Continental Oil of Delaware	4,682,581	$5	25cQ	3-25-40	1.00	1.10	2.98	31½	19⅞	35¾	21¼
6⅞	5	5¾	5½	5⅝	Houston Oil	1,098,618	$25	....	10-17-30	....	.83	.94	9¾	4½	9¾	5
13½	11¾	13½	13	13¼	Lion Oil Refining	435,815	N.P.	25cQ	12-23-39	1.00	2.09	2.17	18⅛	10	25⅛	15⅝
16⅜	13⅞	14½	14	14	Mid-Continent Petroleum	1,857,912	$10	35c	12-1-39	.60	.56	2.86	18	11⅛	22⅝	12¼
10⅝	9⅝	9¾	9¾	9¾	Mission Corporation	1,379,245	$10	40c	12-15-39	.65	1.04	1.31	14⅞	8¾	17⅞	10⅝
9¾	8⅛	8⅞	8⅝	8¾	National Supply	1,155,517	$10	....	12-22-37	....	—.79	4.90	15½	5⅝	23	12½
7⅝	6½	7⅛	6½	7⅛	Ohio Oil Co.	6,563,377	N.P.	20c	12-15-38	....	.25	1.30	10½	6	14⅞	8⅞
8¼	7¼	7¼	7¼	7¼	Pacific Western Oil	1,000,000	N.P.	40c	12-19-39	.40	1.22	1.39	11⅝	7	15⅞	10¼
8	6¾	8	7¼	8	Pan American Pet. & Trans.	4,702,945	$5	....	12-31-37	....	.08	1.18	8¾	5	9¼	6¼
41¾	36½	38¾	36½	38¾	Phillips Petroleum	4,449,052	N.P.	50cQ	3-1-40	2.00	2.03	5.42	46½	31¼	44⅜	27¼
22¾	20½	21⅜	21½	21⅜	Plymouth Oil Co.	1,006,200	$5	35cQ	3-30-40	$1.40	2.59	2.85	24	17⅛	25⅜	15
9⅝	8⅛	9⅝	8¼	9⅝	Pure Oil Co.	3,982,031	N.P.	25c	12-20-39	.25	.38	2.15	11⅜	6⅛	13½	8¼
8⅜	7	7¼	7	7	Richfield Oil Corp.	4,010,000	N.P.	50c	12-18-39	.50	.51	.35	10¼	6⅝	9⅜	5
20	18	18¼	18	18¼	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	3-15-40	1.00	1.52	1.97	24⅝	15⅛	27½	15½
13⅛	10⅜	11¼	10⅜	10⅞	Shell Union Oil	13,070,625	N.P.	25c	12-20-39	.50	.72	1.44	17¼	9⅞	19⅝	10
22¼	19¼	20⅛	19⅜	20	Skelly Oil	995,349	$15	25c	1-30-40	.75	2.27	6.07	29½	15⅜	34⅜	18½
12½	11⅛	11⅜	11⅛	11⅜	Socony-Vacuum	31,206,071	$15	25cSA	9-15-39	.50	1.29	1.82	15⅛	10¼	16⅜	10⅜
26⅛	23⅝	24⅛	23⅝	23¾	Standard Oil of California	13,004,153	N.P.	25cQ	3-15-40	1.10	2.22	3.17	33⅝	24¼	34⅞	25⅛
27⅜	25½	26⅝	25⅜	26⅜	Standard Oil (Indiana)	15,272,020	$25	25c	3-15-40	1.25	1.82	3.66	30	22⅜	35½	24⅜
46½	42⅜	44	43⅜	43⅜	Standard Oil of New Jersey	26,618,065	$25	75c‖	12-15-39	‖1.25	2.86	5.64	53½	38	58⅜	39⅜
63⅝	56¼	60½	60½	60½	Sun Oil	2,316,484	N.P.	25c•	3-15-40	1.00	1.07	3.86	66	45¾	65⅛	45
2½	2	2⅛	2	2	Superior Oil Corp.	1,388,979	$1	10c	12-28-38	....	.24	.32	3⅝	1⅜	4⅛	1⅜
46⅞	42⅜	44⅞	44¼	44½	Texas Corp.	10,876,882	$25	50cQ	1-2-40	2.00	2.13	5.02	50¾	32½	49⅝	32⅝
4⅛	3½	3⅞	3⅝	3⅝	Texas Gulf Producing Co.	888,146	N.P.	10c	12-15-39	.20	.86	.68	5¾	3¼	5⅞	2⅝
8⅝	7½	8⅛	7¾	8	Texas Pacific Coal & Oil	888,236	$10	10c	12-1-39	.40	1.16	1.11	11⅜	7	12½	7
11⅛	10	10½	10⅛	10¼	Tide Water Associated	6,375,253	$10	15c	3-1-40	.80	1.28	2.08	14¼	9½	15¾	10⅛
17½	16	16¼	16	16⅛	Union Oil Co. of California	4,666,270	$25	25c	11-10-39	1.05	1.47	2.58	19⅜	15⅛	22½	17⅛
27	22¾	27	26½	27	Union Tank Car Co.	1,177,381	N.P.	40c†	12-1-39	1.30	1.16	1.70	24¼	20¼	23½	20
3⅝	3⅛	3⅛	3⅛	3⅛	Wilcox Oil & Gas	487,568	$5	10c	2-15-40	....	.52	.24	4¼	2⅝	3½	1⅝

•Also 5 per cent in stock. †Includes extras. ‡Also 2 per cent in stock. §Also 4 per cent in stock. ‖Also 2½ per cent in stock. ¶Also 1⅛ per cent in stock. —Deficit.

New York Curb Exchange

1940 High	1940 Low	Week ended Mar. 9 High	Week ended Mar. 9 Low	Week ended Mar. 9 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1939	Com. sh. earn. 1938	Com. sh. earn. 1937	1939 High	1939 Low	1938 High	1938 Low
7⅝	6⅛	6¼	6¼	6¼	American Republics Corp.	1,308,049	$10	10c	7-11-38	....	—$0.22	$0.27	11¾	5½	11¾	5
3¼	2⅜	2⅞	2¾	2⅞	Bridgeport Machine Co.	270,000	N.P.	$1.25	12-30-37	....	—.14	1.90	7¼	2½	10¼	4⅞
43	28	39¼	38	38	Buckeye Pipe Line Co.	200,000	$50	$1	3-15-40	$2.50	2.36	4.02	34¾	26½	39	22½
116	110	..	..	..	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	3-29-40	6.00	5.32	6.73	130	108⅝	128	97
5	4	4½	4	4¼	Cities Service (new)	3,704,067	$10	....	6-1-32	....	.23	1.02	9¼	4¼	11	5⅛
1½	1⅛	1½	1½	1½	Cosden Petroleum	462,551	$1	....	.....	.....	....	.19	2¼	½	2⅝	⅜
22⅜	19¾	21¼	20⅛	21	Creole Petroleum	6,975,383	$5	50cSA†	12-15-39	1.00	1.64	1.61	28	16⅜	27½	17½
4⅜	4	4¼	4¼	4¼	Darby Petroleum	351,390	$5	25cSA	1-15-39	.25	....	1.36	7⅛	3⅝	10¼	5⅛
2	1⅝	1⅝	1⅝	1⅝	Derby Oil & Refining	263,162	N.P.	....	.....	....	—.91	1.34	2⅝	1½	3½	1½
27	23½	27	26¼	26¼	Eureka Pipe Line	50,000	$50	50c	11-1-39	2.00	—.37	—.12	23	15⅛	31	16
39⅛	34	36½	34½	36	Gulf Oil Corp.	9,076,202	$25	25cQ	12-15-39	1.00	1.43	3.51	45⅛	29¼	46⅞	33
68	58	60½	58	59⅝	Humble Oil & Refining	8,987,840	N.P.	62½c	12-16-39	2.00	3.98	5.22	71	52½	72⅝	56
12⅜	11⅛	11¼	11⅛	11¼	Imperial Oil of Canada	26,965,078	N.P.	37½c†	12-1-39	1.00	.96	.98	17	11⅜	19½	14⅛
6⅝	5¾	6⅛	5⅞	6⅛	Indiana Pipe Line	300,000	$10	20c	11-15-39	.50	.47	1.03	7¼	5½	9⅜	6
19¾	17¼	18⅛	17⅝	17⅝	International Petroleum	14,324,088	N.P.	75c	12-1-39	1.75	1.98	....	27½	17	31¼	21
2¾	2¼	..	..	..	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	....	.14	.17	3⅜	2⅛	5	2⅛
10⅜	9⅝	9¾	9⅝	9¾	Lone Star Gas	5,553,747	N.P.	30c	12-22-39	.70	.88	1.14	10½	7⅛	10⅝	6⅝
6	5	5¼	5⅛	5⅛	Louisiana Land & Exp.	2,977,449	$1	10c	3-15-40	.35	.45	.58	7⅜	4	9⅜	6½
15	15	..	..	..	Margay Oil Corp.	149,943	N.P.	25cQ	1-10-40	1.00	2.28	3.26	17	14½	24	16
8	7¼	7⅜	7½	7⅝	Midwest Oil Co.	998,474	$10	45c	12-15-39	.90	.93	1.14	8¾	6⅝	9¾	6⅝
5¾	5¼	5⅝	5⅜	5⅝	Mountain Producers	1,593,584	$10	30cSA	12-15-39	.60	.62	.76	6	4⅞	5⅝	4½
13⅛	12	12¼	12⅛	12¼	National Fuel Gas	3,810,183	N.P.	25cQ	1-15-40	1.00	.84	.96	14	11¼	14⅝	11½
11¼	8¾	11	10⅝	10⅝	National Transit	509,000	$12.50	50c	12-15-39	.85	.88	1.19	9½	7¼	9¼	6½
1¼	1	1⅛	1	1	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	....	.02	.02	1¾	1	2⅝	1½
6½	5¼	..	..	..	New York Transit	100,000	$5	25c	10-14-39	.40	.16	.49	6	4	4½	3½
7¾	6¾	7⅝	7⅝	7⅝	Northern Pipe Line	120,000	$10	15c	12-1-39	.30	.24	.78	7	4½	6	4
5½	4⅝	5⅜	5	5⅛	Pantepec Oil	2,857,000	$1	....	.....	....	....	....	7⅝	4	7¾	3½
3¼	2¼	2¼	2¼	2¼	Root Petroleum Co.	336,045	$1	25c	2-1-37	....	.17	—.17	5	1¼	4½	1⅝
2½	1⅞	..	..	..	Ryan Consolidated	298,931	N.P.	....	.....	....	.29	.46	3	1⅞	4	2⅛
7⅝	4⅞	6¾	6½	6½	Southern Pipe Line	100,000	$10	15c	3-1-40	.30	—.27	.85	4⅞	3½	5⅜	3¼
44	39¼	40¼	39½	39½	South Penn Oil	1,000,000	$25	$1.87½Q†	12-15-39	3.00	1.44	4.64	40½	26¾	39	28¾
35	31	32	31	31	Southwest Penna. Pipe Lines	35,000	$50	$5	4-1-40	2.00	—.41	.95	23	18	22¼	16½
20⅞	20	20¾	20½	20½	Standard Oil of Kentucky	2,604,790	$10	25c	3-15-40	1.30	1.45	1.60	20½	17¼	18⅝	15
37½	28¾	37½	28¾	37	Standard Oil of Ohio	753,740	$25	25c	3-15-40	1.50	1.81	3.67	32¾	17	22⅝	16¼
2	1⅜	1⅞	1⅜	1⅝	Sunray Oil	2,007,076	$1	5c	5-1-40	.10	.23	.42	2⅜	1⅜	3¼	2
2¾	2½	2¾	2¾	2¾	Texon Oil & Land	936,024	$2	10c	3-29-40	.10	.56	.51	4	2⅝	5¼	3½
3⅜	2¾	2¾	2¾	2¾	Transwestern Oil Co.	750,000	$10	....	.....	....	—.12	.48	6	2½	7⅝	4¼
2⅛	1¾	1½	1⅜	1½	United Gas Corp.	7,818,959	$1	....	.....	....	—.51	.25	3⅜	1½	5¼	2⅝

†Includes extras. —Deficit.

Personal Paragraphs

J. W. S. BESSONETTE, of Pure Oil Co., has accepted the chairmanship of the American Petroleum Institute's newly formed subcommittee on external relations, a division of the A.P.I. public-relations committee. Mr. Bessonette, 14 years with Pure Oil Co., is assistant manager of retail marketing and is located in the company's general offices in Chicago.

D. W. ELLIOTT has been elected president of the California Stripper Well Association.

A. F. CORWIN, director and vice president of Socony-Vacuum Oil Co., Inc., sailed from New York en route to Venezuela aboard the Santa Paula.

A. H. HOVER, Los Angeles, Calif., operator, was a recent business visitor in New Mexico oil fields, where he formerly was active in oil development.

GEORGE R. LORD, general manager of refineries for Sinclair Refining Co., Inc., of New York, was in Fort Worth, Tex., last week looking over the company's refinery there.

HARVEY H. BLAIR, of Hartman & Blair, Wichita, Kans., operators, is taking a delayed vacation in Miami, Fla., spending much of his time fishing in Atlantic waters off the Florida coast.

E. P. MILLER, geologist for Oliphant Oil Corp., Shreveport, La., presented a paper on "The Cotton Valley Field, Webster Parish," at the weekly meeting of the Houston Geological Society last week.

J. D. FULLERTON, assistant to the manager of Apex (Trinidad) Oilfields, Ltd., is in New York with Mrs. Fullerton. They plan to remain in the United States until the end of April, when they will return to Trinidad.

GEORGE S. BUCHANAN, vice president of Adams Oil & Gas Co., Houston, Tex., and GEORGE H. HARRINGTON of the geophysical department for Barnsdall Oil Co., Houston, have resigned and formed a joint partnership devoted to research and consulting work.

JOSEPH NEELY, geologist, Magnolia Petroleum Co., Oklahoma City, has been transferred to Jackson, Miss.

J. B. WHEELER, scout with Stanolind Oil & Gas Co. in Oklahoma, has been transferred to Jackson, Miss.

C. H. TUTTLE, for several years superintendent of the purchase and stores division of Standard Oil Co. of Texas with offices at Houston, Tex., has been appointed district purchasing agent for Standard Oil Co. of California and will maintain offices in Los Angeles. Mr. Tuttle succeeds W. C. BROOKS who resigned to accept a position with Petroleum Equipment Co. in Los Angeles.

CECIL HAGEN, chief geologist in Houston, Tex., for Superior Oil Co. of California, has resigned, effective March 15, to become a consulting geologist in the Texas and Louisiana coastal areas. He had been with Superior 5 years, as chief geologist at Houston since early 1939.

RUSSELL J. POTTS, construction engineer for C. S. Whitman Co. in charge of erecting the new refinery of the Indiana Farm Bureau Cooperative Association, Inc., at Mount Vernon, Ind., will become operating superintendent of the plant when it is completed late this month.

E. A. KODYEN, formerly of Petrolia, Ont., but for several years a resident of Canberra, Australia, will leave shortly for Papua to became general field manager for the Papuan Apinaipi Petroleum Co. A farewell party was given Mr. and Mrs. Kodyen by the Australian geological adviser, DR. WOOLNOUGH and Mrs. Woolnough, prior to their departure.

JAMES M. HEWGLEY, director and vice president in charge of production for Transwestern Oil Co., has resigned as vice president in charge of production. He will be associated with Slick-Urschel Oil Co. in the same capacity. He had been with the Transwestern Oil Co. and its predecessors, Trust Estates of Thomas B. Slick, since 1927, and is leaving San Antonio, Tex., to take active charge of his work.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

Pennsylvania Grade crude oil is cut to $1.45 per barrel.

Department of the Interior rescinds its recent order that royalty on oil from Indian leases be paid for on a basis of 55 cents per barrel. The best oil in Oklahoma pays the producer only 40 cents, and the department has had to return to that basis.

Mrs. John D. Rockefeller died suddenly at her home in Tarrytown on March 12. Mr. Rockefeller and son, John D., Jr., were in Florida, but a daughter, Mrs. Parmalee Prentice, was with her mother at the end.

20 YEARS AGO

Notwithstanding that crude-oil prices in most American fields are the highest in history, independent refiners are paying premiums as high as 50 cents per barrel for crude.

Oil-region tubular goods are high in price and hard to get, and operators are meeting with great delay in their drilling operations.

There were 373 refineries in operation in the United States on January 1, 1920, and 99 in the course of construction. The daily crude capacity of the finished plants is 1,530,565 bbl. and of the plants under construction 263,500 bbl. Texas leads with 64 operating plants and 50 under construction.

The retail price of gasoline is about 32 cents per gallon with no tax.

10 YEARS AGO

Standard Oil Co. of Indiana begins the marketing of its "New Iso-Vis" and "New Polarine" lubricating oils.

William Pearce, 82 years old, a pioneer in oil exploration in the Alberta, Canada, district, died at Calgary, Alta. His company, Calgary Petroleum Products Co., drilled the first oil well in the Turner Valley field.

DAVID HINSHAW, of Standard Oil Co. of New Jersey, addressed the Municipal Bond Club of New York March 13 on "What's Happening in Mexico."

JAKE ENDERS, formerly district scout for Sinclair Prairie Oil Co. at Tyler, Tex., has been transferred to the company's district offices at Wichita Falls, Tex.

GERALD W. RUMBLE, assistant to the manager of the Anglo-Ecuadorean Oilfields, Ltd., of Guayaquil, Ecuador, arrived in New York on a business visit last week.

HARVEY E. YATES, HOWARD R. STROUP, and J. DON MUDGENS, New Mexico oil operators, have incorporated the Stroup & Yates Oil Co., of Artesia, N. M.

SIR VICTOR SASSOON, of London, interested in numerous international petroleum enterprises, was a visitor in New York for several days. He has returned to England.

D. C. GANTT, production superintendent for Wilcox Oil & Gas Co., formerly located at Pampa, Tex., has been shifted to the company's Oklahoma City offices and EVERETT E. HOLDEN, of Oklahoma City, will take his place.

J. C. CASE, manager of the production department of Socony-Vacuum Oil Co., Inc., left New York last week for a business trip to Venezuela and other South American countries where the company is extensively interested in production and exploration activity.

GEORGE BEVIER, consulting geologist of Houston, Tex., has moved to San Antonio where he will be engaged in consulting work.

DR. H. E. BANTA has been transferred to Jackson, Miss., to take the place of O. B. MANES as manager of the Independent Exploration Co. Mr. Manes has been transferred to South America.

JOE A. WORSHAM, Dallas, Tex., has announced that his operating company, Patterson Drilling Co. of Tyler and Henderson, Tex., has been changed to Brock Oil Co., with headquarters in Dallas.

WIRT FRANKLIN, Ardmore, Okla., former president of the Independent Petroleum Association of America, will be the principal speaker April 10 at a meeting of the West Central Texas Oil and Gas Association in Graham, Tex.

DR. E. R. WEIDLEIN, director of Mellon Institute, was recently presented with an aluminum plaque for distinguished services to applied chemistry and the chemical profession by the Pittsburgh section of the American Chemical Society.

RALPH STEINMAN, head of Sinclair Prairie Oil Co.'s scouting department at Tulsa, and J. W. GODDARD, land man for the company from Ardmore, Okla., spent last week in Wichita Falls, Tex., inspecting the company's interests in that district.

RALPH A. LIDDLE, geologist, of Fort Worth, Tex., returned to New York from a 3-month trip to Ecuador spent in checking oil concessions for Pittsburgh interests. Mr Liddle expects to be in New York until shortly after the first of April while preparing his report.

Higher Post for Graves

Bert I. Graves, recently advanced to chairman of the operating committee for the eastern division of the Tide Water Associated Oil Co., has been in the service of that organization or one of its predecessor companies since October 1909. He had left school a short time before, and his first job was that of a junior clerk in the pipe-line department of the Associated Oil Co., San Francisco. After occupying various positions in the accounting and personnel departments he joined the sales department in 1922 and was sent to the Orient as general sales representative, maintaining headquarters in Shanghai, China. Returning to San Francisco in 1925, Mr. Graves was appointed assistant to the vice president in charge of sales. Four years later he was made general sales manager. He was elected a director in 1932 and vice president in 1933.

BERT I. GRAVES

With the formation of the Associated Oil Co. as an operating company in 1936, Mr. Graves was made a director and vice president in charge of sales for the western division. He is a director of the Pioneer Midway Oil Co., Sterling Oil & Development Co., and Western Minerals Co., subsidiaries of Tide Water. He is a member of the Bohemian, Family, Olympic, and the Lakeside Golf and Country clubs, all of San Francisco. He was president of the Golden Gate Exposition Petroleum Exhibit, Inc., and did much to make the oil display one of the most attractive of the fair. In his new post Mr. Graves' headquarters are in New York.

TOM GRAHAM, independent producer of Corpus Christi, Tex., is a patient at Spohn Hospital, Corpus Christi, where he is recovering from pneumonia.

F. E. WOOD has been appointed superintendent of gasoline pipe lines of Standard Oil Co. of Indiana. He will also continue as petroleum engineer in the production department.

WALTER A. JONES, Pittsburgh, Pa., oil man, has announced his candidacy for the Democratic nomination for the seat in the U. S. Senate now occupied by Sen. JOSEPH F. GUFFEY, who is a candidate for renomination.

CHARLES F. KETTERING, vice president of General Motors Corp., addressed a dinner meeting held under the auspices of American Manufacturers Association in New York by telephone from his laboratory at Coral Gables, Fla.

EARL C. RENSHAW, chief accountant for Pennzoil Co. at Oil City, Pa., was honored at a dinner given by officials and employes on leaving for Pittsburgh, where he joins the South Penn Oil Co.

N. O. WATSON, manager of Caribbean Petroleum Co. at Maracaibo, Venezuela, will greet Mrs. Watson and their daughter, Martha Watson, next week when their boat, which sailed from New York March 8, reaches Curacao.

B. G. BARNES, formerly drilling superintendent for Union Producing Co. at Tinsley dome, Mississippi, has been appointed district field superintendent. J. E. WIGINGTON becomes the drilling superintendent and J. L. MEW, formerly petroleum engineer, has been promoted to production superintendent.

DR. MARK HANNA, geologist with Gulf Refining Co., Houston, Tex., addressed members of the Mississippi Geological Society this week on "Geology of the Claiborne Formation."

DR. ISAAC DROGIN has accepted an appointment with United Carbon Co., Charleston, W. Va., as director of research in connection with the manufacture of carbon black from natural gas. For a number of years he was in charge of carbon-black production and chief chemist for J. M. Huber Co.

Shifts: ROY STRAND, Shell Mex, from Havana, Cuba, to St. Elmo, Ill.; J. Z. WERBY, independent producer, from San Jose, Costa Rica, Central America, to Longview, Tex.; R. W. FAIR, president, R. W. Fair Oil Co., from Tucson, Ariz., to Tyler, Tex.; E. C. WILL, superintendent, Shamrock Oil & Gas Corp., from Amarillo, Tex., to Corpus Christi, Tex.; CHARLES H. LANE, vice president, Virginia Oil Corp., from Houston, Tex., to Jackson, Miss.; C. N. VALERIUS, geologist, Barnsdall Oil Co., from Shreveport, La., to El Dorado, Ark.; J. S. WALTON, engineer, Standard Oil Development Co., from Elizabeth, N. J., to Westfield, N. J.; JOHN SCHOLDER, Trinidad Leaseholds, from New York to Trinidad, British West Indies; M. E. ROSE, superintendent, Darby Petroleum Corp., from Wichita, Kans., to Russell, Kans.

C. E. HAINES, former superintendent at Orlando, Okla., who has aided in supervision of Shell Oil Co., Inc.'s new Magnolia, Ark., gasoline plant, is superintendent of the new plant, as it begins operations.

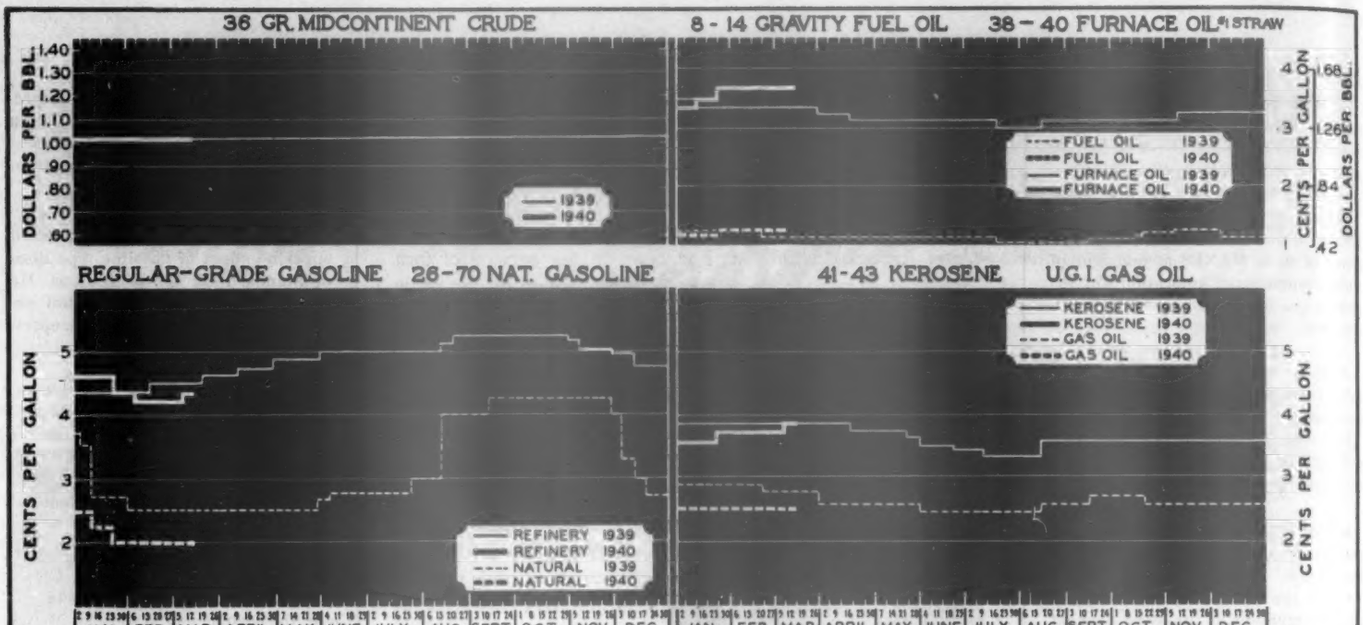
F. W. MICHAUX, JR., formerly vice president in charge of operation for Navarro Oil Co., at Houston, Tex., has resigned to head a company of his own. Charter for F. W. Michaux, Inc., of which Mr. Michaux is president, was granted by the state last week.

DON DAWSON, general sales manager of General Petroleum Corp., who has devoted his time to the land, production and marketing departments, has recently completed 20 years' service with the company. He was for a time manager of the land department, then field superintendent of the Midway division of the producing department and finally went over to the marketing department.

RALPH JOHNSTON, Houston oil operator, is in North Louisiana and Mississippi drilling a wildcat in Madison County, Mississippi.

THOMAS F. DOUMANI, formerly of the department of chemistry, University of Washington, has been recently appointed to a position to carry on research for Union Oil Co., Wilmington, Calif.

H. B. BERNARD, who has been associated with subsidiaries of Consolidated Oil Corp. since 1917, has left the Sinclair Prairie Oil Co. After the war he occupied the position of assistant general superintendent of Sinclair Pipe Line Co., and from 1920 to 1930 was vice president of Sinclair Oil & Gas Co. in charge of the gasoline department, of construction, and of engineering. In 1929 he became president of Sinclair Automobile Service Corp., a unit operating service stations and the Pennant Hotels. For the last 4 years he has been in the executive department of Sinclair Prairie Oil Co. in a consulting and advisory capacity on production and other matters. After a short vacation on the Gulf Coast Mr. Bernard will act as general consultant on oil-industry problems, and engage in the practice of consulting engineering.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Strength of Gasoline and Kerosene Rises in Group 3; Naturals Off

By T. F. SMILEY

DEFINITE improvement in gasoline, kerosene, and tractor fuels, partly offset by further softening of heating oils and naturals, was recorded by the Group 3 market this week.

On Tuesday the Standard Oil Co. of Indiana advanced subnormal gasoline tank-wagon prices to both dealers and consumers throughout Indiana, except in its Chicago sales division, to within 1 cent of normal wherever the existing price was more than 1 cent below normal.

Illinois Problem Less Alarming

This action was encouraging not only because it was one of various signs of a better market in the making, but because especially it pointed to declining importance of cheap gasoline from Illinois as a trade factor. Mid-Continent refiners have felt the pressure of underpriced material from that area in recent months. Reports indicate that production of Illinois crude probably has reached its peak, to the benefit of both crude and gasoline markets.

Mid-Continent stocks of motor fuel increased 81,000 bbl. in the week ending March 2, compared with an increase of 59,000 bbl. in the week ending February 24. Nevertheless refiners, though deeply concerned over the country's total stocks, expressed themselves as pretty well satisfied with their own inventories. "We're sold out at one of our plants and 50 cars behind at another," reported one large independent refiner.

Heating oils, which had been clinging rather precariously to winter prices in spite of milder temperatures, broke in the past week, and all the grades from No. 2 straw down were obtainable for about an eighth cent less than previous quotations. Quotations on range oil, prime white, and No. 1 straw continued to hold, as all these products are readily convertible into tractor fuels, for which there was a conspicuously livelier demand.

Kerosene occupied firmer ground, as was evidenced by an eighth-cent advance in prices. Standard Oil Co. of Indiana advanced to normal all subnormal tank-wagon prices of Standard tractor fuel and Standard heater oil in Illinois, Indiana, Wisconsin, Minnesota, Iowa, North Dakota, and South Dakota, the higher prices becoming effective March 7. On the same date the company advanced subnormal tank-wagon markets on Perfection kerosene to within a half cent of normal where the existing price was more than that amount below normal. No changes were made in either kerosene or heater oil in Chicago.

Refined Oil Market Barometer

Motor fuel stronger in interior areas, but softer on both Atlantic and Pacific coasts. Kerosene vigorous generally, with supplies scarce at some points. Tractor fuels in rising demand. Heating oils, except those of high gravity, suitable for tractor use, in seasonal decline. Weakness of naturals more pronounced, with large inventories in Texas looking for outlets.

MID-CONTINENT. Gasoline and kerosene firmer. Naturals extremely soft. Lubes holding.

EAST COAST. Gasoline easier. Kerosene tight. Lubes weaker. Export markets still dull.

GULF COAST. Gasoline continues weak. Easier tone in kerosene. Fuel oils less active.

PENNSYLVANIA. Gasoline unsteady. Kerosene firm. Steam-refined stocks lead lubes in drop.

CALIFORNIA. Gasoline weaker; lower prices in prospect. Concessions obtained on fuel oil.

CHICAGO. Gasoline improving. Kerosene and tractor fuels brisk. Fuel oils off.

Weakness of Naturals Deepens

Weakness of natural gasoline deepened. Although the published price of 26-70 in Texas remained at 1¾ cent, material was said to have been offered at less than that. No sales were reported at the lower figure, but that was because nobody apparently wanted to buy casinghead at any price. The 2-cent price was still firm for intrastate movement in Oklahoma, but it was accepted as certain that if the Texas price should break the Oklahoma price would automatically take a corresponding drop. Even the large manufacturers have more 26-70 than they want on their hands at this season, for the warm-weather motor fuel now being produced by refiners requires a much lighter blend of casinghead, and evaporation loss on this high vapor-pressure grade is serious if it is held in storage for an extended period. Plants not equipped to stabilize their 26-70 material are forced to push their output into a market already saturated.

Both domestic and export business in lubricating oils was active. One of the largest manufacturers of neutrals, bright stocks, and packaged motor oils said orders in hand made it impossible for him to take care of any additional business. Demand for products in this division of the market has drawn heavily on the inventories accumulated previous to last September.

A slightly better tone was observable in the heavy industrial oils. Offerings were not overplentiful, and buyers said it still was impossible to get even a quotation from Kansas refiners.

Weakness in Motor-Fuel Market More Pronounced in the East

By H. STANLEY NORMAN

NEW YORK, Mar. 12.—Weakness in the motor-fuel market on the Atlantic Coast became more pronounced last week at several points. The weakness is somewhat spotted and applies principally to low-octane products and to the 72-octane leaded material.

As a partial offset to softening motor-fuel prices, Gulf Coast refiners reported a firm market for all grades of gas oil, and kerosene is practically unobtainable, even at the top price of 4¾ cents per gallon which has been paid for several cargoes loaded recently. Bunker C fuel oil for coastwise movement is reported available in several directions on the Gulf at 90 cents per barrel, which is 5 cents under the previous low for residual fuels. Three or four cargoes were available at 90 cents, according to information reaching New York. Some refiners in more favorable stock position are asking the previous top figure of $1.05 per barrel, but still are not in need of moving material into the open market. Motor fuel meeting 72-octane (leaded) specifications and 65 (white) gasoline are available in the New York barge market at 6 cents per gallon, and some observers report this figure will purchase stocks for tank-car delivery.

In recognition of the weakened motor-fuel market at New York, Socony-Vacuum Oil Co., Inc., lowered its dealer tank-wagon price four-tenths of a cent per gallon March 7, and other downward adjustments outside of the five metropolitan boroughs were in prospect, unless the trend of the market is altered in the near future.

Open-charter rates on clean tankers for coastwise movement have dipped to 64 cents per barrel, but dirty boats are still difficult to locate and owners are asking even higher prices for the Gulf to north-of-Hatteras voyages. Boat owners are asking up to 67 cents per barrel for kerosene and 70 cents for light-fuel-oil cargoes.

There is still no evidence of improvement in the export market. Observers of foreign consumption conditions report that European requirements are off approximately 35 per cent from normal, including material that is going into warfare operations. Estimates have been made, with the qualification that they are nothing more than good guesses, that 1940 export demand from this country will be as much as 20 per cent below the 1939 shipments. In advancing the estimates for reduced-export-business outlook this year, those responsible point out that the nature of the summer military activity will have an important bearing on final results. Attention is called to the comparative vulnerability to bombing raids of petroleum supplies in the hands of belligerents, and it is pointed out that the current lack of interest in foreign buying could be reversed on short notice.

One of the motor-fuel products under considerable market pressure is said to be aviation stocks in the hands of smaller Gulf Coast refineries. These stocks consist largely of 72 (white) gasoline which can be blended and treated to meet 87 and 92-octane specifications. Buying commissions of the Allies are said to have become extremely reluctant to purchase anything below 100-octane specification. However, it is pointed out that pilot-training programs in Canada, France, and England have not been pushed with particular vigor so far and that the lower-octane grades of aviation gasoline would be completely satisfactory for this warfare preparation. Consequently, it is pointed out, the 87 and 92-octane grades of aviation gasoline which are currently in limited demand from the belligerent European and neutral nations may become quite active if it is necessary to train thousands of airplane pilots in a relatively brief time.

It is assumed that the belligerents are taking advantage of the current absence of intense fighting to build up stocks of the best-quality aviation fuel in preparation for the campaign generally anticipated in the spring and summer.

Temperature conditions in this section continue favorable to domestic fuel-oil consumption, although the severe phase of the winter as typified by January and the latter part of December is apparently ended. Hundreds of domestic burners in the New England and eastern New York section were thrown out of service last week because of power-line failures. Sleet, rain, and snow froze to power lines and the weight caused widespread disruption of electrical service and consequently oil-burner motors were idle. Repairs were still being made to the electrical transmission systems in the more severely damaged areas a week after the storm. Failure of central heating plants caused a bulge in demand for kerosene as home owners pressed space heaters into emergency service.

The kerosene market in New York is strong, although tank-car-price quotations are unchanged at 5.6 to 6.5 cents per gallon. The major supplying refiners in this section report their positions with respect to light fuel oils, including kerosene, as unchanged. The draft on stocks of light burning products has tapered off slightly, but current production is still inadequate to meet demand. The low of the present kerosene tank-car market is actually representative of the contract prices, while the few suppliers in position to quote on spot business are asking 6 to 6.5 cents per gallon.

A half-cent advance in the tank-wagon kerosene price at Philadelphia on February 29 by Atlantic Refining Co. was announced last week, indicating that the strength in this particular product blankets a long strip of the North Atlantic coast line.

Dark cylinder stocks in the western Pennsylvania refining district slumped ½ to 2 cents per gallon on the various grades following 2 weeks of declines on bright stocks and neutral lubricating oils. Scale wax held to the range of 5¼ to 5½ cents per pound for both domestic and export business, and the fully refined grades are unchanged and in firm demand.

The most severe market reduction was suffered by the 630-flash dark stock, which was offered at 20 cents per gallon in a few directions, off 2 cents from previous quotation. Offerings were made at 14 cents on 600 steam-refined cylinder oil, off a half cent from the market prevailing in the first week of March.

Stagnation of the spot lubricating-oil market is still closely related to the storage of stocks at coastal terminals previously sold for export to belligerent and neutral nations which remain in the hands of refiners and jobbers awaiting boats for movement to destinations.

A. P. I. Weekly Refinery Statistics

Week Ended March 9, 1940

	Capacity reporting (per cent)	Daily crude runs (bbl.)	Total gasoline stocks (bbl.)	Gas oil and distillate stocks (bbl.)	Residual fuel-oil stocks (bbl.)
East Coast	100.0	568,000	20,111,000	6,488,000	8,078,000
Appalachian	87.3	105,000	3,902,000	384,000	639,000
Ind., Ill., and Ky.	90.7	513,000	17,020,000	2,523,000	2,893,000
Okla., Kan., and Mo.	81.6	277,000	8,845,000	1,135,000	1,965,000
Inland Texas	50.3	107,000	2,100,000	266,000	1,459,000
Texas Gulf	90.0	856,000	16,556,000	2,859,000	5,611,000
Louisiana Gulf	97.8	122,000	3,014,000	741,000	980,000
N. Louisiana and Ark.	55.0	42,000	686,000	195,000	443,000
Rocky Mountains	54.2	37,000	1,714,000	146,000	506,000
California	90.0	463,000	18,539,000	9,173,000	79,241,000
Total reported	86.4	3,090,000	92,487,000	23,910,000	101,815,000
Est. unreported	.....	360,000	6,910,000	650,000	2,010,000
*Est. total	.....	3,450,000	99,397,000	24,560,000	103,825,000
*Est. total previous wk.	.....	3,445,000	98,364,000	25,015,000	103,521,000
*March 10, 1939	.....	3,205,000	85,912,000	27,997,000	111,681,000

*Bureau of Mines.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended March 2, 1940	244,126,000 barrels
Week ended February 24, 1940	240,836,000 barrels
Week ended March 3, 1939	272,971,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Gulf Coast Markets

HOUSTON, Tex., Mar. 12.—There was little change in Gulf Coast refinery markets the past week. While kerosene had an easier tone it continued to be the strongest part of the market. Material was said to be plentiful.

Sellers of fuel and burning oils continued to find it less difficult to fill demands and an easier tone prevailed, although no weakness was reflected in the price structure as material continued to be moved under the prevailing quotations.

There was no improvement in the gasoline situation, though there continued to be rumors that the British and French governments were trying to negotiate deals.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of March 12, 1940

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dir.	Incl. tax	tank wag.
Chicago, Ill.	15.1	13.1	4.0	10.0
Decatur	15.1	12.1	4.0	9.5
Joliet	15.1	13.6	4.0	10.0
Peoria	15.1	12.7	4.0	10.0
Quincy	14.9	13.4	4.0	9.8
Davenport, Ia.	15.1	13.6	4.0	‡10.0
Des Moines	14.9	12.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	16.5	15.0	5.0	10.4
Minneapolis	16.5	14.5	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.4	5.0	10.3
Milwaukee	16.3	14.8	5.0	10.2
Detroit, Mich.	13.6	12.1	4.0	7.6
Grand Rapids	13.2	10.3	4.0	9.0
Saginaw	14.8	13.3	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	†10.5
Indianapolis	16.8	14.3	5.0	†10.2
South Bend	16.8	15.3	5.0	†10.2
Fargo, N. D.	17.7	16.2	5.0	11.6
Huron, S. D.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	12.9	4.0	8.0
St. Louis*	14.7	13.2	4.0	8.0
St. Joseph	14.4	12.0	4.0	7.9
Wichita, Kans.	13.3	11.1	4.0	7.0

*State tax 2 cents, 1-cent city tax, and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective December 12, 1939, f.o.b. Chicago tank-wagon prices: Standard heater oil, 1-99 gal., 9 cents; 100-149 gal., 8 cents; 150 gal. and over, 7.5 cents. Stanolex fuel oil No. 1, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex furnace oil, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex Grade A, 1-399 gal., 5.5 cents; 400 gal. and over, 4.5 cents. Stanolex Grade B, 1-799 gal., 5.25 cents; 800 gal. and over, 4.25 cents. Stanolex Grade C, 1-999 gal., 4.5 cents; 1,000 gal. and over, 3.5 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Cons'r tank wag.	Di-vided dir.	Incl. tax	tank wag.
Ohio points	15.5	14.5	5.0	*13.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Cons'r tank car	Dir. tank wag.	Incl. tax	tank wag.
Atl'tic City, N. J.	11.6	12.7	4.0	8.1
Newark	11.6	12.7	4.0	8.1
Annapolis, Md.	13.35	14.35	5.0	9.5
Baltimore	12.75	13.75	5.0	7.5
Cumberland	14.15	16.15	5.0	10.0
Wash'gton, D. C.	11.00	12.0	3.0	9.5
Danville, Va.	14.95	17.45	6.0	11.5
Norfolk	13.75	16.25	6.0	11.0
Petersburg	14.05	16.55	6.0	11.7
Richmond	14.05	16.55	6.0	11.0
Roanoke	15.25	17.75	6.0	11.5
Charles'n, W. Va.	14.55	17.05	6.0	12.6
Parkersburg	13.85	15.35	6.0	11.2
Wheeling	14.85	16.75	6.0	11.3
Charlotte, N. C.	16.90	18.40	7.0	11.3
Hickory	17.45	18.95	7.0	12.3
Mt. Airy	17.30	18.80	7.0	12.2
Raleigh	16.65	18.15	7.0	11.5
Salisbury	16.95	18.45	7.0	11.9
Charleston, S. C.	14.75	17.25	7.0	9.25
Columbia	15.60	18.10	7.0	11.5
Spartanburg	16.30	18.80	7.0	12.2

Price basis to Esolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryand, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery; 100,000 gal. per year, consumer tank-car price plus 0.5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less 0.5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less 0.5 cent per gallon. The above policy also applies in South Carolina, effective January 23, 1939.

Discounts for kerosene, 1 cent off tank-wagon price for 25 gal. or more under contract (contract not necessary in Baltimore), except no discount in New Jersey.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline			Kero.
	Cons'r tank wag.	Net dlr.	Incl. tax	tank wag.
Atlanta, Ga.	17.0	17.0	7.0	10.0
Augusta	17.5	17.5	7.0	10.0
Macon	16.5	16.5	7.0	10.0
Savannah	16.5	16.5	7.0	9.0
Birmingham, Ala.	18.5	18.5	8.0	9.0
Mobile	18.5	18.5	9.0	8.0
Montgomery	19.5	19.5	9.0	11.0
Jackson, Miss.	16.0	16.0	7.0	10.0
Vicksburg	16.5	16.5	7.0	9.5
Jacksonville, Fla.	17.0	17.0	8.0	8.0
Miami	17.0	17.0	8.0	8.0
Pensacola	18.5	18.5	9.0	8.5
*Tampa	21.0	18.0	8.0	8.0
Lexington, Ky.	16.5	16.5	6.0	10.0
Covington	14.5	14.5	6.0	9.5
Louisville	15.5	15.5	6.0	9.0
Paducah	15.5	15.5	6.0	9.0

Price basis to tank-wagon consumers, effective January 4, 1937, 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

*Temporary discounts to tank-wagon consumers in Tampa 3 cents per gallon below consumer tank-wagon price on Crown gasoline.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Cons'r tank car	Dir. tank wag.	Incl. tax	tank wag.
Albany	12.6	14.2	5.0	8.3
*Met. N. Y.: Manhat., Bronx, Queens, Brklyn., Staten Island	12.7	13.3	5.0	8.5
Buffalo	13.1	14.5	5.0	7.9
Rochester	13.3	15.0	5.0	8.5
Syracuse	13.2	14.5	5.0	8.8
Portland, Me.	12.6	14.4	5.0	8.5
Manchester, N.H.	13.3	15.3	5.0	8.9
Burlington, Vt.	13.1	15.4	5.0	8.7
Boston, Mass.	11.5	13.0	4.0	8.5
Worcester	12.1	13.5	4.0	8.6
Hartford, Conn.	11.9	13.3	4.0	8.4
New Haven	11.8	12.8	4.0	7.5
Providence, R. I.	11.5	13.3	4.0	8.5

*Does not include 2 per cent city sales tax, which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective February 15, 1939, the company changed its commercial consumer policy in New York and in New England points for tank-wagon delivery to the following: Annual purchases 10,000 gal. and under, tank-car price plus 2 cents per gallon; annual purchases 10,000 gal. up to 50,000 gal., tank-car price plus 1.5 cents per gallon; annual purchases 50,000 to 200,000 gal., tank-car price plus 1 cent per gallon; annual purchases 200,000 gal. and over, tank-car price plus ½ cent per gallon. Private consumers pay undivided dealer price, plus 2 cents per gallon. Private consumers receiving full compartment deliveries of at least 200 gal. receive a discount of ½ cent per gallon.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Cons'r tank car	Dir. tank wag.	Incl. tax	tank wag.
Philadelphia, Pa.	12.0	14.0	5.0	10.5
Pittsburgh	13.0	14.5	5.0	10.5
Allentown	13.0	14.5	5.0	10.5
Erie	13.0	14.5	5.0	10.0
Scranton*	12.5	15.0	5.0	10.5
Altoona	13.0	15.0	5.0	10.5
Dover, Del.		13.5	5.0	10.5
Wilmington		14.0	5.0	10.0

Price basis to undivided dealers, dealer tank-wagon price less 0.5 cent per gallon.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

*Voluntary discount of 1 cent allowed to dealers only.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank truck	Serv. sta.	Incl. tax	tank wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	20.0	21.0	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	†13.75
Spokane	21.5	22.5	6.0	†16.75
Tacoma	20.0	21.0	6.0	†13.75

*Includes 5-cent state tax. †Includes 0.25-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck, and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline			Kero.
	Tank wag.	Dir.	Incl. tax	tank wag.
Denver, Colo.	14.0		5.0	10.5
Grand Junction	17.5		5.0	12.5
Pueblo	15.0		5.0	9.0
Casper, Wyo.	16.5		5.0	11.5
Cheyenne	15.5		5.0	11.0
Billings, Mont.	18.0		6.0	12.0
Butte	19.0		6.0	13.0
Great Falls	18.0		6.0	12.0
Helena	18.5		6.0	12.5
Salt Lake, Utah	15.5	15.5	5.0	14.0
Boise, Idaho	21.1	21.1	6.0	16.0
Twin Falls	21.1	21.1	6.0	16.5
Albu'que, N. M.	14.5		6.5	10.0
Roswell	16.0	16.0	6.5	8.0
Santa Fe	17.5	17.5	6.5	10.0

*Includes city tax of 0.5 cent. †Includes state tax of 1 mill.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Cons'r tank car	Dir. tank wag.	Incl. tax	tank wag.
New Orleans, La.	14.75	17.25	8.0	†11.0
Baton Rouge	14.75	17.25	8.0	‡10.5
Alexandria	14.75	17.25	8.0	‡10.5
Lafayette	15.00	17.50	8.0	‡10.0
Lake Charles	14.75	17.25	8.0	‡12.5
Shreveport	13.50	16.00	8.0	29.0
Knoxville, Tenn.	18.00	20.50	8.0	13.0
Memphis	16.00	18.50	8.0	11.0
Chattanooga	17.50	20.00	8.0	12.0
Nashville	17.00	17.50	8.0	11.0
Bristol	18.25	17.75	8.0	13.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

†Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline			Kero.
	Tank wag.	Dir.	Incl. tax	tank wag.
Texarkana, Ark.	13.0		5.0	7.0
Fort Smith	14.5		5.0	7.5
Little Rock	16.75		7.5	8.0
Muskogee, Okla.	13.0	12.0	5.0	7.0
Oklahoma City	11.0		5.0	6.5
Tulsa	11.0		5.0	6.0

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dir.	Incl. tax	tank wag.
Omaha	16.5	13.5	6.0	9.5
McCook	16.5	13.9	6.0	9.0
Norfolk	16.5	14.4	6.0	9.5
North Platte	17.5	14.9	6.0	10.0
Scottsbluff	18.5	15.5	6.0	10.0

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Texas

	Gasoline			Kero.
	Tank wag.	Dir.	Incl. tax	tank wag.
Dallas, Tex.	12.0	16.0	5.0	7.0
Fort Worth	12.0	16.0	5.0	8.0
Houston	13.5	17.5	5.0	7.0
San Antonio	13.0	17.5	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank wag.	Incl. tax	Kero. tank wag.
Halifax, N. S.	25.0	10.0	19.0
St. John, N. B.	25.0	10.0	19.0
Montreal, Que.	24.0	8.0	16.5
Toronto, Ont.	23.5	8.0	16.0
Hamilton, Ont.	23.5	8.0	16.0
Winnipeg, Man.	26.5	7.0	20.5
Brandon, Man.	28.0	7.0	22.9
Regina, Sask.	25.5	7.0	20.5
Saskatoon, Sask.	28.0	7.0	23.0
Edmonton, Alta.	25.9	7.0	20.9
Calgary, Alta.	23.0	7.0	18.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Tank-Wagon Changes

Continental Oil Co. reduced tank-wagon kerosene February 22 in Tulsa 1 cent; March 1, in Denver 1 cent, Grand Junction 2½ cents, Cheyenne 2 cents.

Standard Oil Co. of Nebraska March 4 advanced dealer gasoline 0.6 cent in Omaha.

Standard Oil Co. (Indiana) March 7 advanced tank-wagon kerosene 1 cent in Decatur, 0.3 cent in Green Bay, and 0.2 cent in Indianapolis and South Bend.

Atlantic Refining Co. February 29 advanced tank-wagon kerosene 0.5 cent in Philadelphia.

Socony-Vacuum Oil Co., Inc., March 7 reduced dealer tank-wagon gasoline 0.4 cent in the five boroughs of New York.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted.

Prices as of March 12, 1940

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 octane and below	.03½	.03⅝
63-66 octane	.03⅝	.03¾
67-69 octane	.04	.04⅛
70-72 octane (regular)	.04⅛	.04¼
60-62 400 grades:		
62 octane and below	.03⅝	.03¾
63-66 octane	.03¾	.04
67-69 octane	.04¼	.04⅛
70-72 octane (regular)	.04⅛	.04¼
68-70 360	.04¼	.04⅜

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.03½	.03⅝
63-66 octane	.03⅝	.03¾
67-69 octane	.04	.04⅛
70-72 octane (regular)	.04⅛	.04¼
60-62 400	.03⅝	.03⅝

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
62 octane and below	.04	.04⅛
63-66 octane	.04¼	.04⅜
70-72 octane (regular)	.04⅜	.05

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
62 octane and below		.04
70-72 octane (regular)		.05

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.03¾	.03⅞
63-66 octane	.04	.04⅛
67-69 octane	.04¼	.04⅜
70-72 octane (regular)	.04⅜	.04⅝
60-62 400 grades:		
62 octane and below	.03⅞	.04
63-66 octane	.04	.04⅛
67-69 octane	.04¼	.04⅜
70-72 octane (regular)	.04⅜	.04⅝
68-70 360	.04⅜	.04⅝

PENNSYLVANIA (Inland refineries)—

58-62 U. S. Motor		.05
72-74 octane (regular)	.06	.06¼

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.05¾	.07
58-60 400, 65 oct. and higher	.07	.08

EAST COAST (domestic)—

U. S. Motor, 65 and above:		
*New York (Bayonne)	.06¼	.07½
Philadelphia	.06¼	.07½
Boston	.06½	.07½
Baltimore	.06¼	.07½
Charleston, S. C.	.07	.07¾

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery ⅛ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
65-67 octane	.04¾	.04¾
68-70 octane	.04¾	.05
70-72 octane (leaded)	.05	.05¼

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.02
Grade 18-55	.02¾	.02¾

NORTH TEXAS—

Grade 26-70		.01¾
Grade 18-55		.02¼

CALIFORNIA—

75-85 375-390	.05¾	.06

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.02¼

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110-flash, 540-550 e.p.	.03¾	.03⅞
41-43 gr., 300-320 l.b.p., 110-125 flash, 500-520 e.p.	.03¾	.03⅞
46-48 gr., 210-230 l.b.p., 480-max. e.p.	.04	.04¼

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43		.03⅞
42-44		.04

NORTH TEXAS—

41-43	.03¾	.03⅞

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43		.03¾

ARKANSAS (Ark. and N. La. del.)—

41-43	.03¾	.03⅞

PENNSYLVANIA (Inland refineries)—

45	.05	.05¼
46		.05¼
47		.05¼

CHICAGO (Based on Group 3)—

41-43	.03¾	.03¾
42-44	.03¾	.04

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04½	.05¾

NEW YORK (Bayonne, N. J.)—

41-43	.056	.065

GULF COAST (domestic)—

41-43	.04½	.04¾

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03¾	.03⅞
No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40		.03⅞
No. 2 straw, 32-36	.03⅝	.03½
No. 2 dark, 32-36	.03¼	.03⅜
No. 3 zero to 10, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02¾	.02⅞

NORTH TEXAS—

No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03⅛	.03¼

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36		.03⅜

CHICAGO (Based on Group 3)—

Range oil	.03¾	.03⅞
No. 1 prime white, 38-40	.03¾	.03⅞
No. 1 straw, 38-40	.03½	.03⅝
No. 2 straw, 32-36	.03⅝	.03½
No. 2 dark, 32-36	.03¼	.03⅜
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02¾	.02⅞

NEW YORK (Bayonne, N. J.)—

*No. 1	.056	.065
*No. 2	.051	.056
*No. 4	.051	.06

*Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.02¾	.02¾
No. 5, low pour point, 19-22	.72½	.77½
No. 6, 15 and above, 9-14	.50	.55

NORTH TEXAS—

U.G.I. gas oil, under 35	.02¾	.02¾
No. 5, low pour point, 18-22	.75	.80
No. 6, 15 and above, 9-14	.50	.55

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70	.75

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02¾	.02⅞
No. 5, low pour point, 18-22	.75	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.50	.55

PENNSYLVANIA (Inland refineries)—

36-40	.04	.04½

CALIFORNIA—

Los Angeles:

30-40 gas oil, per bbl.	1.15	1.25
24 plus diesel, per bbl.	1.15	1.25
24 plus diesel (bunkers)	1.20	1.35
12-16 (bunkers at tidewater)	.65	.75
10-16 (cargo lots)	.65	.75
12-17 (tank cars)	.60	.75
10-17 (high sulfur)	.50	.85

San Joaquin Valley:

10-18 (tank cars)	.50	.70
24 plus diesel, per bbl.	1.15	1.25

San Francisco:

24 plus diesel, per bbl.	1.35	1.40
24 plus diesel (bunkers)	1.40	1.50
10-16 (bunkers)	.80	.85

GULF COAST—

No. 2 fuel		.04¼
43-47 diesel		.04
48-52 diesel		.04¼
53-57 diesel		.04½
58-and-above diesel		.04¾
Bunker C (bulk cargoes)	.97	1.00
Bunker C (bunkers)	.90	.95

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil	.051	.052
28-30 diesel (lighterage 6¼c per bbl.)	2.10	2.20
28-30 diesel (tank cars)	.05	.053
Bunker C (to ocean-going ships in N. Y. Harbor)		1.50
Industrial fuel (tank cars)	.035	.04

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

200-210 D, 10-25		.28
150-160 D, 0-10		.24
150-160 D, 10-25		.23
100-110 D, 0-10		.23
100-110 D, 10-25		.22
Steam refined:		
600 dark green (untreated)		.08

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):

10 pour point	.27	.28
15 pour point	.26	.27
25 pour point	.25	.27
Steam refined:		
600	.13½	.14½
650	.15½	.16½
600 flash	.17½	.18½
630 flash	.20½	.21½

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:

150-3		.12
180-3		.13
180-4		.12½
200-3		.13½
200-4		.13
250-3		.15
250-4		.14½
280-3		.16
280-4		.15½
300-3½		.16½
400-3½		.17½
100-2½ paraffin oil		.07

10-25 pour point:

200-3		.13
200-4		.12½
250-3		.14½
250-4		.14
280-3		.15½
280-4		.15

GULF COAST—

Pale oils:

200-3	.07¼	.07⅛
300-3	.07¾	.08
500-3½	.08½	.09
750-3½	.09	.09½
1,200-3½	.09¾	.10
2,000-4		.10¼

Red oils:

200-5-6	.07	.07⅛
300-5-6	.07½	.07¾
500-5-6	.08¼	.08¾
750	.08¾	.09¼
1,200-5-6	.09¾	.09¾

CALIFORNIA (moving to dom. market)—

Pale oils:

100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11

Red oils:

200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11¼
400-5-6	.09¼	.11¼
450-5-6	.09¼	.11¼
500-5-6	.09¼	.11¼
600-5-6½	.09¼	.11¼
700-6½ plus	.09¼	.11¼
750-6½ plus	.09¼	.11¼
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pour point	.28	.28½
10 pour point	.27	.27½
15 pour point	.26	.26½
25 pour point	.24½	.25½
200 vis. at 70° F., 3 color:		
Zero pour point	.30	.30½
10 pour point	.29	.29½
15 pour point	.28	.28½
25 pour point	.26	.27

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale		.05½

PENNSYLVANIA (Inland refineries)—

122-124 (A.m.p.) w.c. scale	.05¼	.05¼
124-126 (A.m.p.) w.c. scale	.05¼	.05¼

NEW YORK—

Wax in bags fully refined:

125-127 (A.m.p.) wax	.060	.063
128-130 (A.m.p.) wax	.061	.064
130-132 (A.m.p.) wax	.065	.066
133-135 (A.m.p.) wax	.067	.0685
135-137 (A.m.p.) wax	.069	.072
Crude scale:		
124-126 (A.m.p.) w.s.	.0525	.0550
124-126 (A.m.p.) y.s.	.0525	.0550
Petrolatum in barrels, carload lots:		
Dark green	.03125	.03375
Amber	.03375	.03625
Extra amber	.03625	.03875
Lily white	.05875	.06000
Snow white	.06875	.07000
Cream	.04875	.05000

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.05	.05⅝
60-62 400	.05¼	.06¼
61-63 390	.05¼	.06⅛
64-66 375	.05⅝	.06¼

LOS ANGELES—

U. S. Motor grades:		
60-65 octane	.05½	.05⅝
65-69 octane	.05⅝	.06¼
Above 69 octane	.06¼	.06½

KEROSENE

GULF COAST—

41-43 water white	.04¾	.05

LOS ANGELES—

41-43 water white	.06	.06¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbl.)—

Cylinder stocks:		
600 S.R. unfiltered	.22½	.23
630 S.R. unfiltered	.24	.26
600 flash, S.R.	.25½	.27
630 flash, S.R.	.31	.32
Bright stock:		
Light, 25 pour point	.34	.36

NEUTRAL OIL

200-3 color	.35½	.36
150-3 color	.34	.36

PARAFFIN WAX

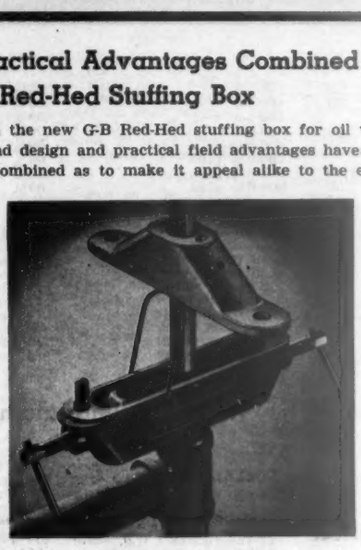
NEW YORK (prices per pound)—

123-125 A.m.p.	.0700	.0725
125-127 A.m.p.	.0725	.0750
128-130 A.m.p.	.0750	.0775
133-135 A.m.p.	.0775	.0800
135-137 A.m.p.	.0825	.0850
Crude scale:		
124-126 w.s.	.0525	.0550
124-126 y.s.	.0525	.0550

EQUIPMENT PROGRESS...

Practical Advantages Combined In Red-Hed Stuffing Box

In the new G-B Red-Hed stuffing box for oil wells, sound design and practical field advantages have been so combined as to make it appeal alike to the equipment engineer, production superintendent and pumper.



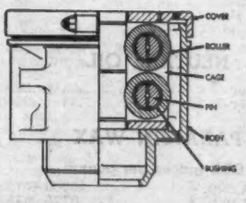
This device, introduced by Gustin-Bacon Manufacturing Co., Kansas City, Mo., is built around a new packing element, the patented Meshtite rubber. It packs off with less friction and less wear on the polished rod. It maintains a tight fluid seal during all stages and lasts much longer.

The two halves of the Meshtite rubber fit into each other and instead of interfering they cooperate as the wear advances in encircling the polished rod and in sealing off the fluid.

Only slight pressure is needed to make the seal. It can be tightened up without a wrench. It greatly reduces wear on the rod. It requires repacking at less frequent intervals, with real economy in rubbers and a substantial reduction in down time.

Baash-Ross Offering Improved Roller Kelly Drive Bushing

An improved heavy-duty roller kelly drive bushing is available from Baash-Ross Tool Co., 5512 Boyle Avenue, Los Angeles, Calif. The 2RS roller kelly drive bushing features unusually heavy construction throughout, and has been designed especially for the heavy torque loads and high rotation speeds of modern deep-well drilling. Each of the driving surfaces is contacted by two extra-large-diameter rollers and by no other part of the drive bushing. These rollers provide adequate contact area with the driving surfaces of the kelly, reduce frictional resistance to feeding, and prevent tearing or corrugating of the kelly faces.



Torque loads are transmitted directly through each of the highly hardened driving rollers to a replaceable inner bushing, which absorbs virtually all of the wear that occurs. The roller bushings in turn ride upon large-diameter reversible roller pins, which are case-hardened and ground to minimize wear. When one side of the roller pins becomes worn the pins can be reversed so that virtually double pin life is assured.

The advantage of this type of drive bushing, according to the manufacturer, is that the roller action causes the kelly to feed through the rotary easily, allowing a more sensitive feed control, more accurate weight indications, and freedom from binding. Also, the inner bushings and reversible roller pins confine wear to the cheapest part of the roller kelly drive bushing.

TRADE LITERATURE

F. E. SCHUNDLER & CO., INC., 504 Railroad Street, Joliet, Ill.—Catalog of Schundler insulations, including pipe coverings, blocks, loose fill, insulating cements, lagging, blankets.

PYOTT FOUNDRY & MACHINE CO., 328 North Sangamon Street, Chicago.—Source-of-information index, for purchasing agents, engineers, etc.; standard card-index size.

BRAD FOOTE GEAR WORKS, Cicero, Ill.—256-page stock gear and reducer book; contains engineering section, with helpful trigonometric tables.

CATERPILLAR TRACTOR CO., Peoria, Ill.—Two bulletins, "Caterpillar" 13-66 diesel electric set and "Caterpillar" 11-52 diesel electric set; booklet "One Million Hours of Diesel Satisfaction," discussing "Caterpillar" diesels.

MANNING, MAXWELL & MOORE, Inc., Bridgeport, Conn.—Consolidated catalog 1600, oil and gas relief valves.

HENRY VOGT MACHINE CO., Tenth and Ormsby Streets, St. Louis, Ky.—Bulletin, drop-forged steel gate valves.

THE BRISTOL CO., Waterbury, Conn.—Catalog, air-operated controllers.

WAGNER ELECTRIC CORP., 6400 Plymouth Avenue, St. Louis, Mo.—Bulletin FU-22, air-circulating and ventilating equipment.

Improved Combination Hook Is Put on the Market by Regan

An improved combination hook is announced by Regan Forge & Engineering Co., P. O. Box 150, San Pedro, Calif. It is available for 300-ton capacity and can also be ordered for 100 and 200-ton capacities. This hook embodies two separate load-carrying elements. The large lower hook of this Regan product carries the swivel bail, and the two smaller hook elements formed by the crossyoke carry the elevator links. The crossyoke is slidably mounted within an aperture of the main hook.

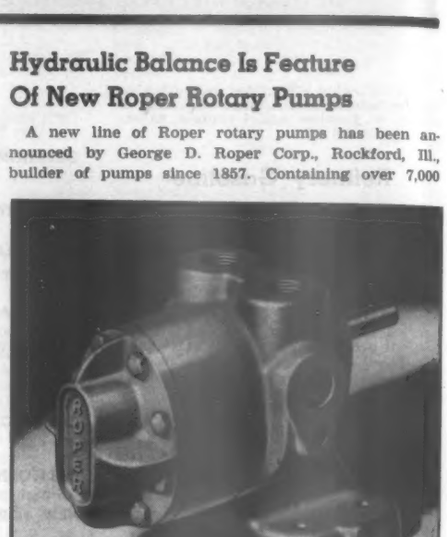
This hook can be locked in any of four positions. It has a safety lock. When the latch on the large lower hook is in open position it hangs at a convenient angle and readily engages the swivel bail, the weight of which automatically closes and locks the latch in the closed position.

The hook is cast of alloy steel, and it is heat-treated to produce maximum physical properties. Also it is tested to one and one-half times the rated safe load.

The overall height of the 300-ton hook is 120 in.

Hydraulic Balance Is Feature Of New Roper Rotary Pumps

A new line of Roper rotary pumps has been announced by George D. Roper Corp., Rockford, Ill., builder of pumps since 1857. Containing over 7,000 units, this new line includes pumps of 1, 3, 5, 10, 15, 20, 35, 50, 75, 100, 150, 200, 300, 500, 750 and 1,000 g.p.m. capacities at speeds up to 1,800 r.p.m. and against pressures up to 1,000 lb. per sq. in. At present 21 different drives and mountings are available, ranging from ordinary foot, hub and flange mounting heads to complete bedplate units for direct motor drive, gear-reduction drive, flat or V-belt drive.

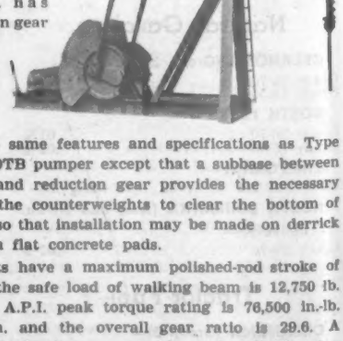


A feature is "hydraulic balance," which equalizes internal pressure at all points and absorbs all shock or thrust from the power end of the drive shaft.

The buyer has choice of spiral, spur, or herringbone gears; conventional packing box, spring-loaded packing box or mechanical seal; sleeve or roller bearings; built-in or external relief valve; eight different piping arrangements.

National Introduces Two Units for Medium Single-Well Pumping

National Supply Co. has added two new unit pumpers to its line. These units, the TU304-HD30TB and the TUS304-HD30TB, are designed for medium single-well pumping service. Type TU-304 - HD30TB, made for installations on concrete foundations, has the reduction gear mounted directly on the frame. Type TUS-304 - HD30-TB has the same features and specifications as Type TU304-HD30TB pumper except that a subbase between the frame and reduction gear provides the necessary height for the counterweights to clear the bottom of the frame, so that installation may be made on derrick floors or on flat concrete pads.



Both units have a maximum polished-rod stroke of 48 in. and the safe load of walking beam is 12,750 lb. A.P.I. The A.P.I. peak torque rating is 76,500 in.-lb. at 20 s.p.m. and the overall gear ratio is 29.6. A fully equalized pitman assembly and roller-bearing wrist-pin housings are regular equipment. National Type B eccentric cranks and counterweights give infinitely and continuously variable adjustability, both

in counterweight effect and degree of lag and lead. The counterweights, of the one-piece type, are clamped in the desired position on the circular rim of the crank. Adjustment is by power with no lifting required. A complete description of these two units is in Bulletin 260.

AMONG EQUIPMENT MEN...

Lane-Wells Offering Time-Saving Electrolog-Survey Service

Lane-Wells Co., Los Angeles, Calif., has announced a combination Electrolog-survey service in all fields where Electrolog equipment is operating, according to M. E. Montrose, general sales manager. This combination of two services is said to result in a saving in down time of 2 to 2½ hours.

After setting up at the well the Electrolog is made to record formation resistivities and natural potential. As soon as the electrode comes out of the hole a multiple-shot survey instrument is attached and run to the bottom of the hole. Hole inclination and direction are recorded magnetically on the film as the survey instrument is withdrawn. By surveying on the way down any tendency of the instrument to whip or sway is eliminated, thus making certain that the instrument is parallel to the axis of the hole. As many as 250 readings can be made on a single run.

Newman, Hender Offers New Lines

Several new lines appear in the latest catalog (No. 59) issued by Newman, Hender & Co., Ltd., Woodchester, Gloucestershire, England, specialists in the manufacture of brass, gunmetal, and iron valves, cocks, and general steam and water fittings. Among the additions are complete ranges of high-pressure cast-iron and cast-steel oil valves and forged-steel globe, check, and gate valves. All are made to the latest S.O.D. (Standard) and B.P.M. (Royal Dutch Shell) specifications. The company points out that, in addition to nickel alloy, its renewable seated valves can be supplied now with seats and clacks of diamond-hard stainless steel. This metal is hard enough to crush (without damage to the valve seats and clacks) boiler scale, pipe turnings, etc., which are likely to be in all service and steam lines. So wide is the range of products offered by the company that of the catalog's 392 pages 6 are taken up by the solid-printed index. A foreword assures visitors courteous aid in obtaining comfortable hotel accommodations, etc.

Manager of St. Louis Branch

Cooper-Bessemer Corp. has established sales offices in St. Louis, Mo., and W. S. Arthur will manage sales engineering activities in the districts served by the new branch. Mr. Arthur joins Cooper-Bessemer with a background of broad experience. He entered the heavy-machinery industry in 1916, with Foos Engine Co., and later was in charge of its experimental department. In 1918 he joined Worthington Pump & Machinery Corp. in a sales capacity. In 1927 he became president of Ohio Pump & Supply Co. He resigned in 1931 to become affiliated with Superior Engine Co. In 1936 he was made head of the company's Chicago offices, where he served until resigning recently to assume his new connection.

As manager of Cooper-Bessemer's new St. Louis office, in the Arcade Building, Mr. Arthur will further sales of the company's gas engines, compressor units, and diesel engines. Territory covered includes most of Missouri, southern Illinois, northeastern Arkansas, and Mississippi as far south as Greenville.

BUSINESS NOTES

T. N. St. Hill, president of Petroleum Rectifying Co. of California, is again at his desk in Los Angeles following a trip to St. Louis, Mo., and New York.

Macwhyte Co., Kenosha, Wis., has appointed Associated Piping & Engineering Co., Ltd., 2332 East Thirty-eighth Street, Los Angeles, Calif., distributor of Macwhyte oil-field wire rope for California.

E. J. Ehret and J. D. Kinsey, with offices at 307 South La Salle Street, Chicago, have been appointed sales representatives in the Chicago territory for the complete line of Waldron gear type and Francke flexible couplings manufactured by John Waldron Corp., New Brunswick, N. J.

Ray C. Koster has joined National Supply Co.'s Houston, Tex., plant division as salesman and has been assigned to the West Texas and New Mexico territory with headquarters in Odessa, Tex. He will promote sales through the National stores of equipment manufactured by the Houston plant.

H. N. Mallon, president of Dresser Manufacturing Co., Bradford, Pa., and J. B. O'Connor, vice president of Clark Bros. Co., Inc., Olean, N. Y., have completed a trip through the oil fields in Texas, visiting recent Clark installations.

Smith Enters Foreign Sales Work

Morris Smith, son of Walter G. L. Smith, president of E. M. Smith Co., Los Angeles, Calif., will transfer his activities to the export department of the concern when he leaves soon on a business trip of several months to oil districts throughout South America. For several years Morris Smith has been engaged in sales and demonstration work for the company throughout the Pacific Coast, Mid-Continent and Gulf Coast oil fields. Previous to his sales activities he worked in the factory where he obtained first-hand knowledge regarding all the products manufactured by the company.

Mr. Smith's plans include personal contacts with oil company executives and field men in practically every active oil field of Colombia, Peru, Argentina, Brazil, Trinidad and Venezuela. He expects to return to the states in midsummer.

NEW YORK CHAPTER OF NOMADS ORGANIZED AND OFFICERS ELECTED

NEW YORK, Mar. 12.—The New York chapter of the Nomads was organized here March 5 with 36 men present representing equipment manufacturers and oil-trade publications. John H. Baird was elected president and one of the representatives on the national board of regents. W. J. Campbell was elected vice president and will serve with Mr. Baird as the other regent from the New York chapter. Other officers elected were E. H. Trammell, secretary and treasurer; A. A. Dill, assistant secretary and treasurer; I. Frank Brown, sergeant-at-arms, and Val R. Wittich, assistant sergeant-at-arms.

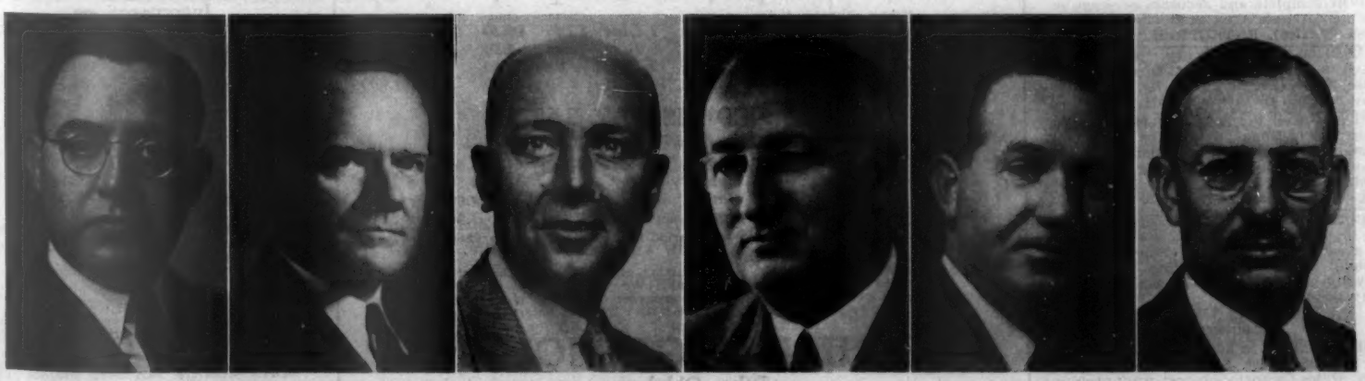
A petition for a charter from the 24 men who attended the meeting who are entitled to full membership, together with the list of officers selected pro tem, has been submitted to the national board of regents for their approval.

H. Pullman, of the Los Angeles Nomad chapter and one of the founders of the Los Angeles chapter, attended the New York meeting and gave several valuable suggestions.

The first Monday of each month as determined by the national board of regents will be the regular meeting date for the New York chapter. The meeting place will be selected and announced at a later date. Equipment manufacturers' representatives attending the meeting and eligible under the Nomad qualifications for full membership were: Mr. Baird, H. B. Book, Mr. Brown, Fred L. Convers, Robert Cumming, C. J. DeLay, Mr. Dill, Lloyd G. Ensign, W. S. Fellows, G. S. Flanders, L. F. Griffith, William Laseter, H. Maland, W. J. Molloy, F. J. Olson, F. T. Ostrander, E. L. Racek, William Siems, J. A. Thomas, Mr. Trammell, T. E. Ward, Mr. Wittich, G. R. Woods and A. L Woracek.

New York representatives qualified for membership but who were unable to attend the organization meeting because of illness or absence from the city include E. H. Bishop, L. V. Boggs, Mr. Campbell, G. E. Daniels, W. S. Evans, E. A. Gretzler, Thad Putnam, A. V. Simonson and G. M. Stewart.

Men attending the organization meeting and eligible for associate membership were: S. D. Beckley, Lloyd Cain, H. B. Cheswick, Calvin Drake, George Hamill, F. Jobst, E. T. Landgraff, E. W. Mayo, J. W. True, P. J. Van Wert and S. F. Gallay.



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WELL LOGS. Drillers' logs of approximately 4,000 wells drilled in New Mexico are available from Well Log Division, New Mexico Bureau of Mines & Mineral Resources, Socorro, New Mexico. Write for price list C.

WAYNE COUNTY, Indiana. Two shallow gas wells completed. Two locations moving in on one immediately. Hancock County, Indiana. One oil well completed, Trenton production. Two new locations, Randolph County, Indiana. One location, commence thirty days. Trenton production in all three blocks. 30,000 acres in the above blocks for sale. Write Jno. M. Seip, Richmond-Leland Hotel, Richmond, Ind.

FOR complete and accurate coverage of the new Artesia Area, read The ARTESIA (New Mexico), ENTERPRISE. $2 a year.

ACREAGE and Royalty for sale. 80 acres under Devonian test. Offset 80 acre lease. $20.00 per acre. Royalty $50.00 per acre base. P. O. Box 164, Carlyle, Illinois.

HAVE well down 1575 feet on large West Texas Dome, would like to contact parties financially able to finance hole to several good pay formations to 3,200 feet. Address Box K-523, The Oil and Gas Journal, Tulsa, Oklahoma.

COLORADO LEASE AND ROYALTY ACREAGE.
A great un-developed oil State, no proration; Rotary now drilling deep test. Royalty and Lease acreage near in Huerfano quadrangle.
JAMES E. TRESSLER
Walsenburg, Colo.

ILLINOIS — 240 acres — Devonian area for test 2500 feet. Structure-near production. Major Company support want prompt action. P. O. Box 164, Carlyle, Illinois.

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FOR SALE Oil and gas leases and small production located in Kentucky shallow field, and leases located in Clay County, Tenn. Have for sale two tracts of proven Fluorspar and Zinc deposits; reports furnished on request. W. P. Harley, Bowling Green, Kentucky.

KENTUCKY
We represent two corporations owning approximately sixty thousand acres of mineral lands in Laurel, Whitley, and McCreary Counties. Tracts vary in size up to five thousand acres. Owners are interested in leasing or selling all or part of their holdings.
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3715 Carew Tower, Cincinnati, Ohio.

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STATE OIL AND GAS LEASES
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HARRY S. WRIGHT
New Mexico State Lessee
Wright Bldg., Farmington, New Mexico.

FOR SALE 320 acres Mineral lease of my farm West Harrison County, George Taylor and J. Pane Survey. Per acre 3.50, as I'm in need of money. Note Mineral activity in this area. E. O. Williams owner, Marshall, Texas.

INDIVIDUAL wants production, up to 500 bbls., for investment. Will consider stripper wells. Any field, any state. Illinois Oil Co., P. O. Box 1524, Tulsa, Okla.

REPRESENTING one of the famous Movie Actors, I want best oil producing interest $100,000.00 will buy. Reuben Usher, Cleburne, Texas.

WILL lease W½ N½ NE of 19-7-5e; NW NE NE NW of 2-8-2e. J. J. Harper, Konawa, Oklahoma.

FOR LEASE — 640 acres on Sulphur River, 4 miles south Maud, Bowie County, Texas. 9418 Hobart, Dallas, Texas.

IF YOU want your land or lease drilled on a partnership basis at no cost to you, write me. Send map showing location of land. Any state suitable. P. O. Box 1174, Longview, Texas.

ZINC: 400 acres in Rock River, Ozark district. Mining Engineers' report on request. Real buy.
ED ALLEN, R-6, Frankfort, Indiana.

FOR SALE: Large blocks wildcat oil and gas leases, in Counties with some oil and gas production. Long term, small rentals and low prices. W. P. HARLEY, Bowling Green, Kentucky.

WILL lease 4-28-7, Butler County, Kans., production surrounds. Oil deals everywhere solicited. Arthur Nickell, Fayette, Missouri.

Leases and Drilling Blocks

IOWA—Sell 40,000 A. 10 yr. leases 2 years before any rentals.
Box 266, Albia, Iowa.

FOR SALE: Gas production, on pipe line with oil and gas leases, Anderson and Allen Co., Kan. W. L. Morris, Garnett, Kan.

FOR SALE OR DRILLING PROPOSITION: 6000 acres long term, low rental Oil and Gas leases, South half Orange County, Indiana. Devonian, Trenton and St. Peter above 2700 feet. Lock Box 223, Robinson, Illinois.

DRILLING CONTRACTOR
With good equipment will sell one-eighth interest in absolutely proven gas lease in one of the most active shallow fields in northeast Oklahoma for $65 to buy gasoline and oil to drill first well. Have moved rig to location and am ready to start drilling now. Pipeline crossing lease offers ready market for all natural gas produced. Write for banking references and full details.
BOX 97, TAHLEQUAH, OKLAHOMA.

REMARKABLE terms, Texas land, 80 to 640 acres, oil possibilities, only $1 acre down. Balance 40 years. PAT CASEY, Houston, Texas.

MONTHLY INCOME FROM GAS
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DIRECTORY of the Illinois Oil Basin now going to press. Write Midwest Oil Journal, Box 381, Centralia, Illinois.

Legal Blanks

SINCE 1908 Burkhart's legal forms—servicing Mid-Cont. oil fields, including Ill., La., Mo., Ind. & Ky. Free catalog & samples. Burkhart Ptg. & Sta. Co., 115 So. Cinn., Tulsa, Oklahoma.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS — Delaware best, quickest, cheapest, more liberal. Free forms. Colonial Charter Co., Wilmington, Del.

For Sale—Maps

TEXAS and NEW MEXICO
UP-TO-DATE OIL DEVELOPMENT MAPS
Zingery Oil Map Co., Fort Worth, Tex.

R. B. ROBINSON MAPS
Jackson, Miss. 3-Hart Bldg., Across Street from Heidelberg Hotel. Ownership maps All Over Mississippi.

Financing

CAPITAL SEEKERS
Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

JOHN MORRIS, Box 5411, Philadelphia, studied records 5000 financial houses. Found only 191 buy new issues. $4.00.

CLASSIFIED ADVERTISING RATES

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	$1.05	$1.80	$2.55	$3.30	7 Lines	$2.45	$4.20	$5.95	$7.70
4 Lines	1.40	2.40	3.40	4.40	8 Lines	2.80	4.80	6.80	8.80
5 Lines	1.75	3.00	4.25	5.50	9 Lines	3.15	5.40	7.65	9.90
6 Lines	2.10	3.60	5.10	6.60	10 Lines	3.50	6.00	8.50	11.00

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes

1 Inch	1 time	$5.00
1 Inch	13 times	4.50 per inch
1 Inch	26 times	4.00 per inch
1 Inch	52 times	3.50 per inch

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma